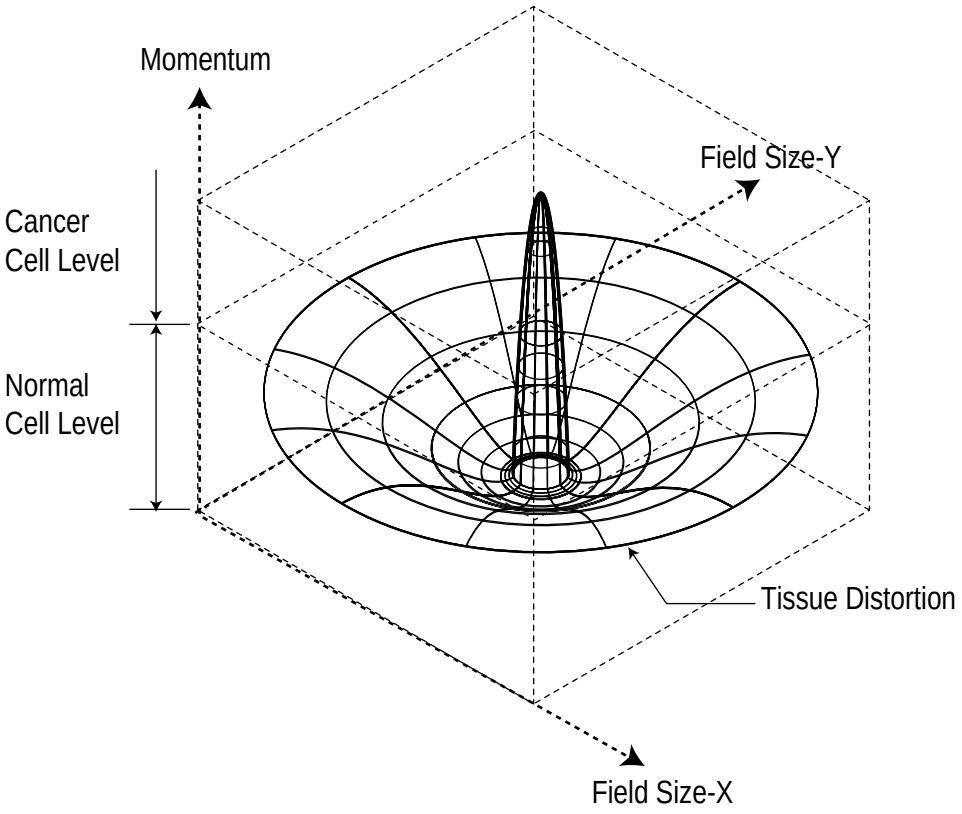
Gastric Cancers Analyzed by Theoretical Physics



Mikio Sugi M.D.

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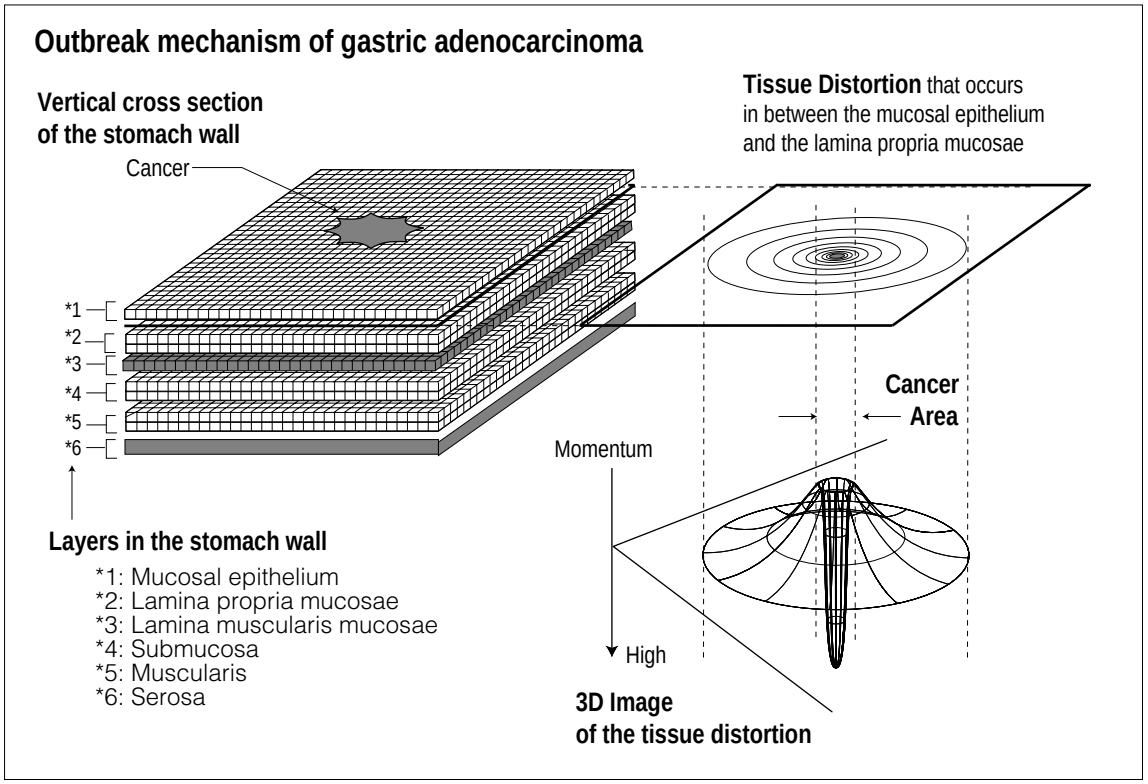

Abstract

The stomach with atrophic gastritis can theoretically be considered to cause adenocarcinoma on the basis of "tissue distortion" that occurs in between the mucosal epithelium and the lamina propria mucosae. This process can be divided into three steps. First of all, the stomach causes the relative difference in metabolic activity between the mucosal epithelium and the lamina propria mucosae. This relative difference in metabolic activity works as primary tissue distortion. Next, the stomach amplifies the tissue distortion by decreasing the momentum. Lastly, to neutralize the amplified tissue distortion, the stomach causes new tissue distortion at the peak of the amplified tissue distortion. This new tissue distortion has the ability to transform its own containing cells into cancer cells; in addition, it arises from the mucosal epithelium nearby the lamina propria mucosae. Thus, adenocarcinoma occurs in there: the mucosal epithelium nearby the lamina propria mucosae. Importantly, besides the stomach, other hollow organs such as the bronchus, the esophagus, the gallbladder, the large intestine, the urinary bladder, the vagina and so on, can also be considered to cause cancer almost by the same mechanism: the relative difference in metabolic activity among the layers.

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I. Introduction

When an organ causes cancer, it must need a force that transforms a normal gene into an oncogene. Although the majority of medical researchers focus on examining the transformation of a normal gene into an oncogene, they seem not to find out the fundamental cause of cancer. Why? This must be because an oncogene is not the fundamental cause of cancer. If so, what mechanism controls cancer? To solve this question, we will pay attention to a force transforming a normal gene into an oncogene, and theoretically analyze gastric cancers through two steps as follows. At the first step, we will pick up important phenomena, which are related to carcinogenesis, not only in a human body but also in nature, then analyze theoretically each of them. At the next step, by using the indications obtained in the preceding step, we will try to analyze theoretically how the stomach causes three types of gastric cancers: adenocarcinoma arising from the mucosal epithelium, signet ring cell adenocarcinoma arising from the lamina propria mucosae, and leiomyosarcoma arising from the lamina muscularis mucosae.

II. Important Points for Theoretical Analysis of Carcinogenesis

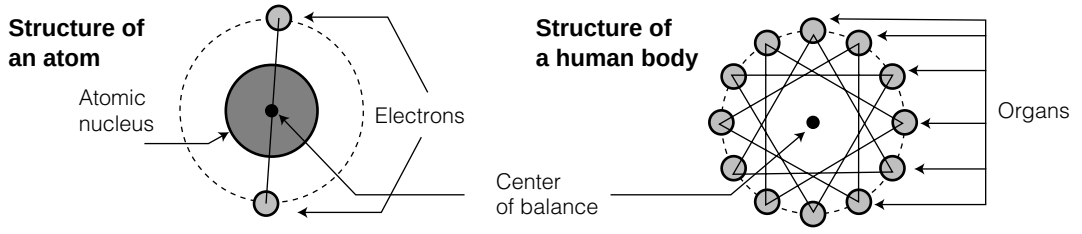
First of all, we will gather important theoretical indications that are useful to analyze carcinogenesis. For this purpose, we will begin by picking up several phenomena not only in a human body but also in nature, then analyze each of them theoretically in order to obtain important indications about carcinogenesis. By using the indications, we will next analyze theoretically how the stomach causes cancer.

(1) A Human Body Working as A Relative System

A human body works as a relative system. Any relative system in nature has its own stability, which originates in the balance among the elements. An atom, for instance, is one of the representative relative systems in nature, and its stability originates in the balance between the atomic nucleus and the electrons. Interestingly enough, a human body and an atom resemble each other in system. A human body consists of organs, each of which balances itself with other organs. This balance works as the stability of a human body. Thus, a human body can also be considered a relative system. That is, both an atom and a human body are relative systems.

This conclusion is indeed important for us to analyze carcinogenesis. When an atom, for instance, loses the balance between the atomic nucleus and the electrons, it loses the stability and disappears. Likewise, when a human body completely loses the balance among the organs, it will lose the stability and die. However, different from an atom, before a human body completely loses the stability, it can regain the stability. Importantly, just this mechanism plays a major role in causing various kinds of diseases including cancer.

Fig. 1. Comparison of system between an atom and a human body



As if an atom maintains the structure on the basis of the balance between the atomic nucleus and the electrons, a human body maintains the life on the basis of the balance among the organs.

Imagine, for instance, an organ increasing the momentum. When an organ increases the momentum, it raises the energy density; then, it causes the imbalance in energy density with the background organs. Because of this imbalance in energy density, the human body decreases the stability. Thus, in order to neutralize the instability, the human body requires the organ to reduce the energy density. By this mechanism, the organ accumulates an excessive amount of watery fluid to reduce the energy density, and then increases the volume. As seen in this process, a human body having decreased the stability causes disease to regain good stability. That is, disease can theoretically be considered to have the ability to allow a human body to regain the stability.

(2) A Human Body Created as A Fractal Structure

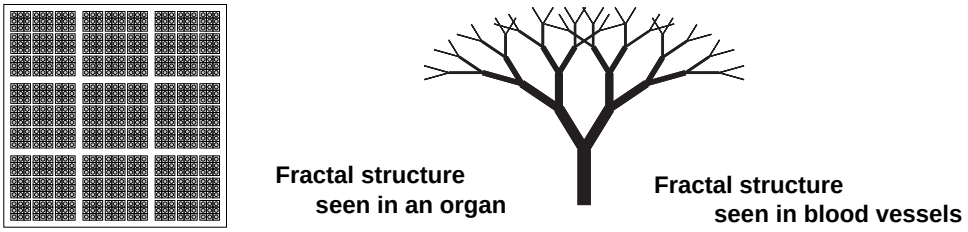
A human body is created as a fractal structure. For instance, one of the clear fractal structures in a human body can be seen in an organ. A cell unit consists of cells; a small leaf consists of cell units; a large leaf consists of small leaves; an organ consists of large leaves. Just this structure indicates a nest of boxes, and which means a fractal structure. In an organ, besides this structure, the branching of blood vessels is also controlled by fractalism. The branching of blood vessels resembles that of branches in a tree; in addition, theoretical physics has pointed out that a tree is one of the fractal structures in nature. Thus, the branching of blood vessels can also be regarded as a fractal structure. All in all, it is not only concluded that an organ is created as a fractal structure, but also indicated that a

human body itself is also created as a fractal structure.

Importantly, there is a strong possibility that a human body controls the metabolism also by using the fractalism. When I treated a person suffering from acute hepatitis, I noticed the fact that decreasing rates of transaminases, such as glutamic oxaloacetic transaminase (GOT) and glutamic pyruvate transaminase (GPT), can be expressed as logarithmic curves. In addition, a logarithmic curve means a fractal curve. This reveals that because a human body is created as a fractal structure, it controls the metabolism also by using the fractalism.

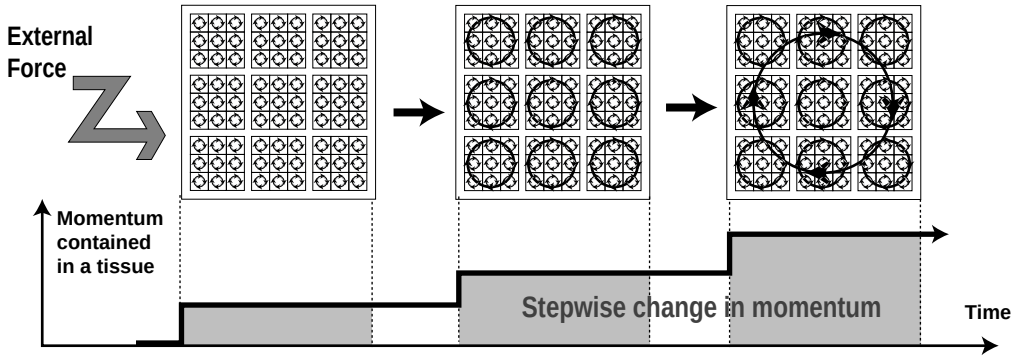
This indication is indeed essential to analyze theoretically how a tissue causes cancer. A human body, as indicated above, controls the metabolism by using the fractalism. Thus, when a tissue is oppressed by an external force, it changes the metabolic turnover rate not linearly but *stepwise*. Specifically, this process can theoretically be considered to pass through the following steps. First of all, a tissue oppressed by an external force absorbs the external force by activating the smallest units: cells. Next, after the smallest units reach their peaks, the tissue absorbs the external force also by activating the secondary-smallest units: cell units. Also after the secondary-smallest units reach their peaks, the tissue absorbs the external force by activating the third-smallest units: small leaves. As seen in this process, a tissue oppressed by an external force changes the metabolic turnover rate step by step because of the fractal structure. Importantly, just this mechanism can theoretically be considered to play an important role in amplifying tissue distortion, and which is directly related to tumorigenesis including carcinogenesis.

Fig. 2. A human body created as a fractal structure



A human body is created as a fractal structure. An organ, for instance, has clear fractal structure. An organ is created as a nest of units, and which means a structure controlled by fractalism; besides, the branching of blood vessels is also controlled by fractalism. This proves that an organ is created as a fractal structure; in addition, this reveals that a human body is also created as a fractal structure.

Fig. 3. Metabolic turnover rate controlled by fractalism



An organ changes the momentum stepwise because of the fractal structure. A human body, as indicated above, is created as a fractal structure; this reveals that not only the structure but also the metabolism are controlled by fractalism. Thus, when an organ changes the momentum, it will change the momentum step by step. The figures above show clearly that an organ oppressed by an external force increases the momentum (= metabolic turnover rate) stepwise.

(3) Theoretical Analysis of Inflammation

"An organ causes inflammation in order to neutralize the imbalance in energy density between the organ itself and the background organs." This indication can be deduced from theoretical analyses of swelling and atrophic change, and which are representative phenomena seen in a tissue with inflammation.

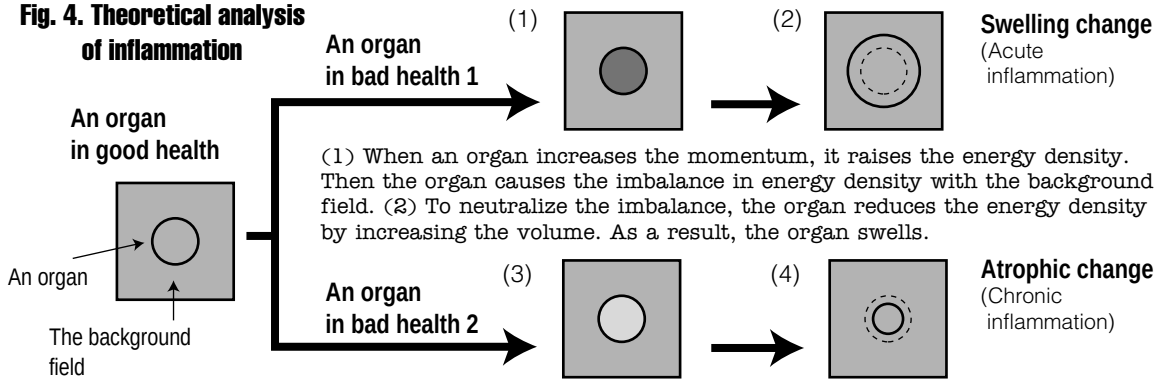
First of all, check theoretically how an organ causes swelling change. When an organ raises the momentum, it also raises the energy density. Simultaneously, the organ loses the balance in energy density with the background organs. (I call this imbalance in energy density "Energy Gap.") A human body maintains the structure on the basis of the stability, which originates in the balance among the organs. Thus, the organ, which has lost the balance in energy density with the background organs, tries to neutralize the imbalance in energy density with the background

organs; then, it reduces the high energy density by accumulating an excessive amount of watery fluid. As a result, the organ swells. This pathological change, of course, is frequently seen in a tissue with acute inflammation.

Next, also check how an organ causes atrophic change. By the opposite mechanism of swelling change, an organ becomes atrophied. When an organ reduces the momentum and decreases the energy density, it causes the imbalance in energy density with the background organs. Then, to neutralize the imbalance in energy density, the organ tries to raise the energy density by decreasing the volume. Through this process, an organ becomes atrophied. Needless to say, this pathological change is frequently seen in a tissue with chronic inflammation.

These two theoretical results bring us a new point of view toward two-stage carcinogenesis. Two-stage carcinogenesis needs two chemical substances: an initiator and a promoter. Of these two chemical substances, a promoter has the ability to cause acute inflammation in a tissue. In addition, theoretical analysis of swelling change has already pointed out that an organ with acute inflammation raises the momentum. Thus, a promoter can be considered a chemical substance having the ability to make a tissue raise the momentum. Of course, this means that a promoter also has the ability to make a cell increase the momentum.

Fig. 4. Theoretical analysis of inflammation



(4) Tissue Distortion Seen in Pre-Cancer Tissues

Tissue distortion can clearly be observed in several kinds of pre-cancer tissues. For example, the following three phenomena are indeed useful for us to notice the existence of tissue distortion in a pre-cancer tissue. The first is a phenomenon that a large polyp often causes cancer at the peak. The second is that injecting either distilled water or high-concentrated saline water into mouse skin enables us to induce cancer. The third is that implanting a film sheet under mouse skin also enables us to induce cancer. Analyzing theoretically these three phenomena allows us to point out that a tissue with tissue distortion often causes cancer.

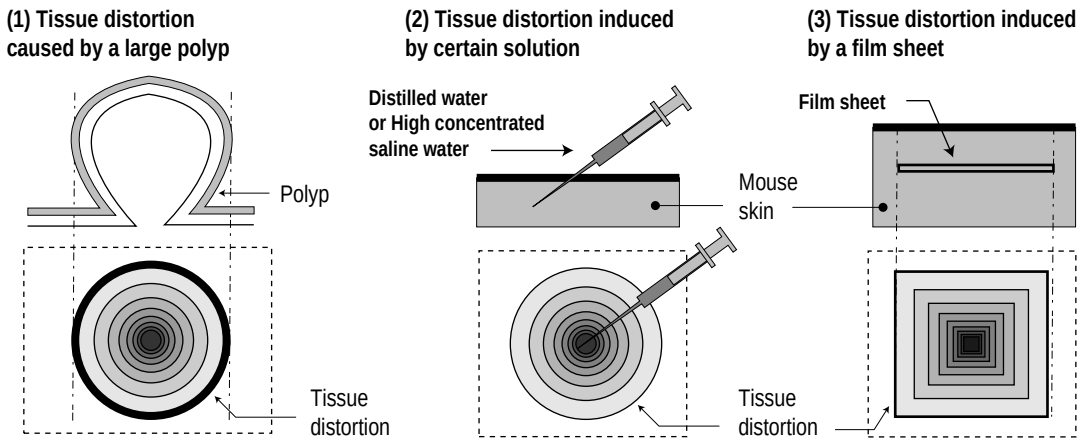
First of all, let us check what structure a large polyp has. A polyp can be regarded as tissue distortion itself; thus, a small and a large polyp work as small and large tissue distortion respectively. Furthermore, medical science has pointed out that a large polyp frequently causes cancer at the peak. These indications allow us to explain that a tissue with large tissue distortion frequently causes cancer at the peak of the tissue distortion.

Next, also check why a tissue injected either with distilled water or high-concentrated saline water causes cancer. Both distilled water and high-concentrated saline water have different osmotic pressures from that of a cell. By this different osmotic pressure, when we inject either distilled water or high-concentrated saline water into mouse skin, we can induce the relative difference in osmotic pressure in the mouse skin. Then this relative difference in osmotic pressure starts functioning as tissue distortion, on the basis of which the mouse skin causes cancer.

Lastly, check what circumstance a tissue implanted with a film sheet has. A film sheet implanted in a tissue can cut the connection in energy flow between cells. By this mechanism, cells around the film sheet cause the relative difference in energy flow, and which works as tissue distortion. In addition, cancer induced by this procedure frequently occurs at the center of a film sheet. These indications allow us to point out that a tissue implanted with a film sheet causes tissue distortion, followed by causing cancer at the peak of the tissue distortion.

All in all, it is concluded that a tissue with strong tissue distortion often causes cancer. Although the majority of medical researchers pay attention only to microscopic mechanisms such as chemical reactions, genetic function, cellular metabolism and so on, they should notice the fact: “Macroscopic mechanisms play a major role in carcinogenesis.” This is because tissue distortion is one of the macroscopic mechanisms in a human body, and is directly related to carcinogenesis. In short, it is not a stretch to say that not microscopic but macroscopic mechanisms mainly control carcinogenesis.

Fig. 5. Tissue distortion seen in pre-cancer tissues

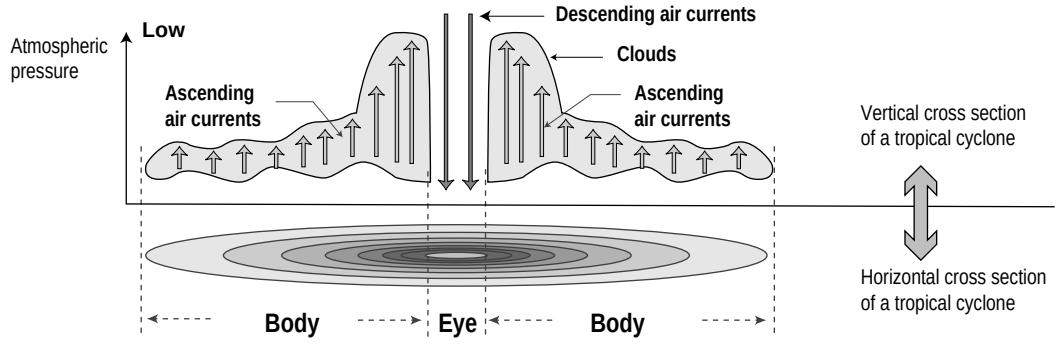


(1) A polyp is tissue distortion itself. (2) Injecting either distilled water or high-concentrated saline water into mouse skin causes the relative difference in osmotic pressure, and which works as tissue distortion. (3) Implanting a film sheet under mouse skin causes the relative difference in energy flow, and which works as tissue distortion.

(5) Tropical Cyclone and Tumorigenesis

Interestingly enough, paying attention to the structure of a tropical cyclone helps us deduce how a tissue causes a tumor. A tropical cyclone is large atmospheric distortion, and consists of the body and the eye. The body and the eye have opposite air currents. Ascending air currents flow in the body; descending ones flow in the eye. In addition, when a tropical cyclone loses the eye, it abruptly loses the stability and then disappears. These phenomena reveal that a tropical cyclone maintains the structure on the basis of the balance of air currents between the eye and the body. In other words, a tropical cyclone is large atmospheric distortion, and cannot maintain the structure without causing the eye. Likewise, when a tissue causes strong tissue distortion, it will cause an eye to neutralize the strong tissue distortion. Just this eye can theoretically be considered a tumor.

Fig. 6. Tropical cyclone and the structure



A tropical cyclone causes the eye to obtain good stability. A tropical cyclone is large atmospheric distortion, and the body has ascending air currents. Thus, to neutralize the ascending air currents, a tropical cyclone needs to cause an area (eye) having descending air currents. By these two opposite air currents, a tropical cyclone obtains good stability.

This mechanism can be applied to tissue distortion which is observed in a pre-tumorigenic tissue. When a tissue causes strong tissue distortion, it decreases the stability. Then, in order to regain good stability, the tissue causes new tissue distortion at the peak of the strong tissue distortion. This new tissue distortion can theoretically be considered to play a major role in causing a tumor.

(6) Two-Stage Carcinogenesis

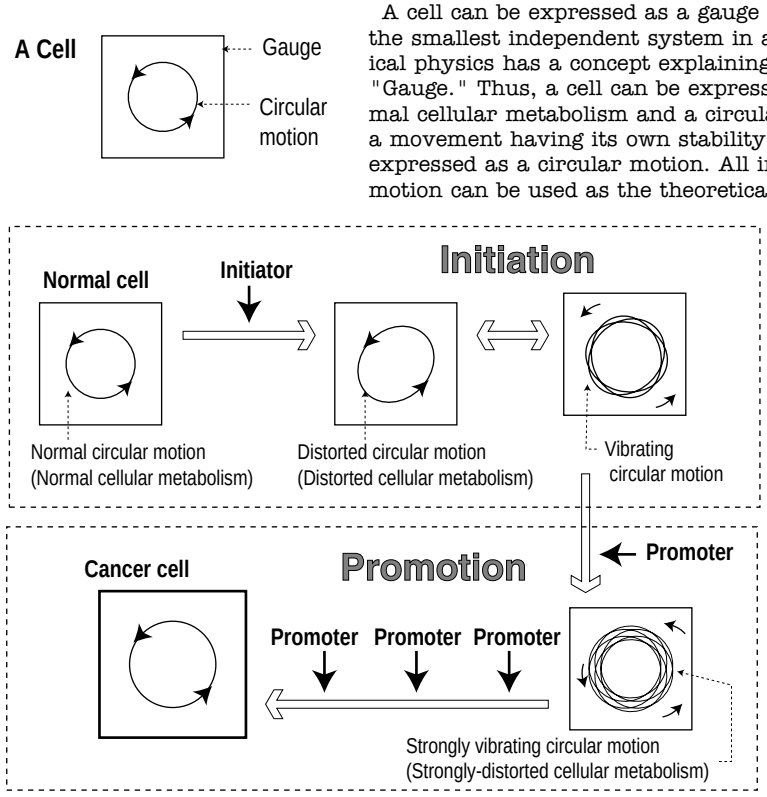
Theoretical analysis of two-stage carcinogenesis leads us to indicate that cancer occurs on the basis of two different mechanisms, which are to make distortion and to amplify the distortion. Two-stage carcinogenesis is a famous experimental carcinogenesis that occurs through two steps: initiation and promotion. Theoretically, the initiation and the promotion can be considered different steps as follows. “Initiation is a step that a cell distorts its metabolism; promotion is a step that a cell with metabolic distortion amplifies the distortion.”

Initiation indicates a step that a tissue is treated with a chemical substance named “Initiator.” Medical science has pointed out that an initiator has the ability to interfere with nucleic acid metabolism, and to cause genomal instability. In addition, once a cell is treated with an initiator, it semipermanently holds the genomal instability. On the basis of this genomal instability, the cell will change the original cellular metabolism into distorted one. Thus, initiation can be considered a process: “A cell treated with an initiator semipermanently causes the genomal instability, on the basis of which it changes the original cellular metabolism into distorted one.”

Promotion indicates a step that a tissue already treated with an initiator is also treated with a chemical substance named “Promoter.” Medical science has explained that a promoter has the ability to cause acute inflammation in a tissue. Acute inflammation, as already explained in section 3, can theoretically be regarded as a phenomenon that a tissue increases the momentum. In addition, two-stage carcinogenesis causes cancer through the process as follows: after a tissue is treated with an initiator, it also needs to be many times treated with a promoter in order to cause cancer. From these points, promotion can be considered a process: “An initiated cell treated with a promoter amplifies the distorted cellular metabolism *by increasing the momentum*.”

In summary, theoretical analysis of two-stage carcinogenesis leads us to conclude that initiation and promotion are different steps as follows. Initiation is a step that a cell causes genomal instability, followed by changing the original cellular metabolism into distorted one. On the other hand, promotion is a step that a cell with distorted cellular metabolism amplifies the distortion by increasing the momentum. In short, initiation is to make distortion; promotion is to amplify the distortion. The figures below illustrate theoretical analysis of two-stage carcinogenesis in vitro, and show the difference in mechanism between the initiation and the promotion.

Fig. 7. Theoretical analysis of two-stage carcinogenesis



(7) Difference in Momentum between A Normal and A Cancer Cell

“A cancer cell usually contains a large amount of momentum compared with a normal cell.” This indication can be deduced from the following two phenomena. First, the size of a cancer cell is usually large more than that of a normal cell. Second, in two-stage carcinogenesis, an initiated cell needs many-times promotions in order to transform itself into a cancer cell.

Now, by paying attention to the difference in size between a normal and cancer cell, check the difference in momentum between them. A cell works as a system; thus, as if a system increasing the momentum enlarges the size,

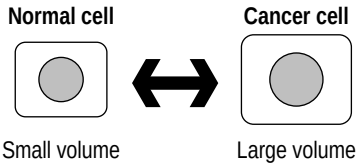
a cell increasing the momentum will also enlarge its original volume. Additionally, a cancer cell usually has large volume compared with a normal cell. For these reasons, it is indicated that a cancer cell usually contains a large amount of momentum more than that of a normal cell.

Next, by paying attention to the promotion in two-stage carcinogenesis, consider again whether a cancer cell contains a large amount of momentum compared with a normal cell. In two-stage carcinogenesis, a cell once treated with an initiator needs many-times promotions to transform itself into a cancer cell. Furthermore, a promoter has already been defined as a chemical substance having the ability to make a cell increase the momentum (= metabolic turnover rate). Thus, every time a cell is treated with a promoter, it will increase the momentum. For the reasons, it is indicated that a cancer cell contains a large amount of momentum compared with a normal cell.

All in all, theoretical analyses of these two phenomena lead us to conclude that a cancer cell usually contains a large amount of momentum more than that of a normal cell. The figures below illustrate these mechanisms.

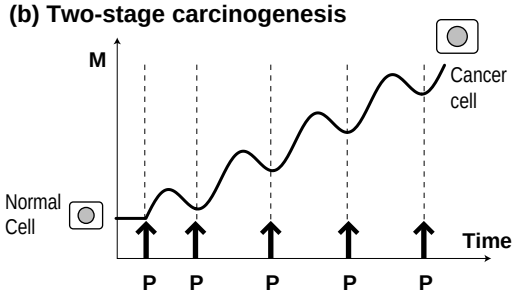
Fig. 8. Difference in momentum between a normal and a cancer cell

(a) Difference in volume between a normal and a cancer cell



Paying attention to the difference in size between a normal and a cancer cell allows us to indicate the difference in momentum between them. A cancer cell, compared with a normal cell, usually has large volume. In addition, a large system generally contains a large amount of momentum compared with a small system. These reasons allow us to indicate that a cancer cell contains a large amount of momentum compared with a normal cell.

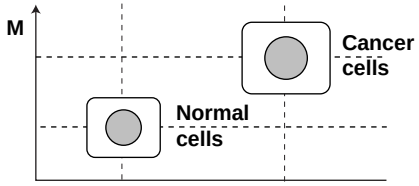
(b) Two-stage carcinogenesis



Theoretical analysis of two-stage carcinogenesis also allows us to indicate the difference in momentum between a normal and a cancer cell. A promoter can theoretically be considered a chemical substance having the ability to make a cell increase the momentum. In addition, an initiated cell needs many-times promotions to transform itself into a cancer cell. For these reasons, it is indicated that a cancer cell contains a large amount of momentum compared with a normal cell.

M: Momentum contained in a cell **P:** Promotion

(c) Difference in momentum between normal and cancer cells



Taking notice of the two indications above allows us to conclude that a cancer cell contains a large amount of momentum more than that of a normal cell.

M: Momentum contained in a cell

(8) Theoretical Analysis of Anchorage Dependence

Theoretical analysis of anchorage dependence enables us to indicate the difference in mechanism between a normal and a cancer cell. A normal cell at cell division shows anchorage dependence; however, a cancer cell at cell division does not show it. This is the most important different point between a normal and a cancer cell. Interestingly, theoretical analysis of anchorage dependence enables us to indicate a new point of view toward cellular function as follows: “A cell showing anchorage dependence does not have three-dimensional stability.”

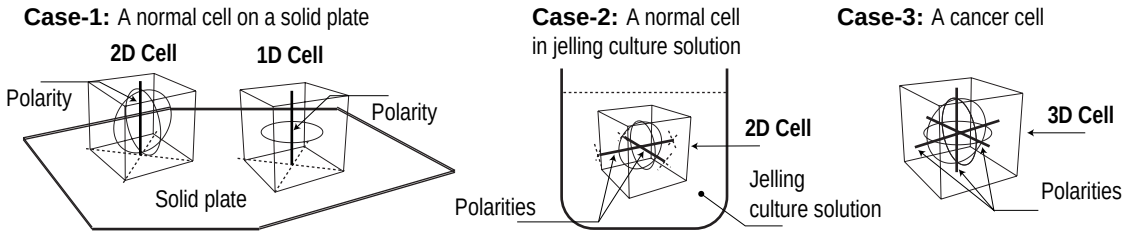
A normal cell can theoretically be considered to obtain three-dimensional stability by attaching to a solid plate. When a cell divides itself, it needs three-dimensional stability to expand the volume. However, a normal cell does not contain movement having three-dimensional stability, and cannot start cell division for itself. Thus, a normal cell needs to obtain a polarity by attaching to a solid plate. This polarity allows a normal cell to fix the internal movement, and then to obtain three-dimensional stability. As a result, a normal cell attaching to a solid plate can start dividing itself. This reveals that a normal cell contains movement not having three-dimensional stability.

On the other hand, a cancer cell can be considered to contain movement having three-dimensional stability from the birth. A cell attaching to a solid plate obtains a polarity, which allows the cell to fix the internal movement and to obtain three-dimensional stability. Then this cell starts dividing itself. However, a cancer cell can divide itself without attaching to a solid plate. These reasons enable us to indicate that a cancer cell, different from a normal cell, contains movement having three-dimensional stability unless it attaches to a solid plate.

In summary, a normal and a cancer cell can be considered to contain different-dimensional movements. Movement having three-dimensional stability is only three-dimensional one. Furthermore, a normal cell does not have three-dimensional stability; in contrast, a cancer cell has it. These reasons allow us to conclude as follows: “Where-

as a normal cell contains movement controlled by one or two-dimensional movement, a cancer cell contains movement controlled by three-dimensional movement."

Fig. 9. Theoretical analysis of anchorage dependence



Theoretical analysis of anchorage dependence enables us to indicate that a cancer and a normal cell contain different kinds of dimensional movements. A cancer cell, different from a normal cell, does not show anchorage dependence, so that it can theoretically be considered to have three-dimensional stability. In addition, movement having three-dimensional stability is only three-dimensional movement. For the reasons, it can be indicated that whereas a normal cell contains one or two-dimensional movement, a cancer cell contains three-dimensional movement.

(9) Difference in Level between A Normal and A Cancer Cell

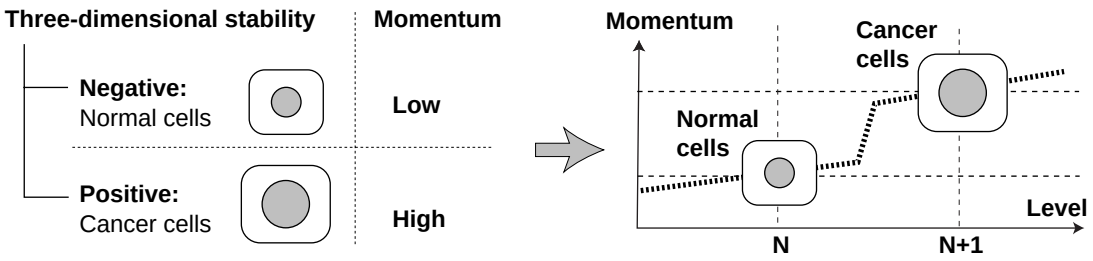
"A cancer cell can theoretically be considered to belong to a level next higher than that of a normal cell." This indication can be deduced from the following two cellular mechanisms already explained in the previous two sections. First, whereas a normal cell has one or two-dimensional movement which does not have three-dimensional stability, a cancer cell has three-dimensional movement which has three-dimensional stability. Second, a cancer cell contains a large amount of momentum compared with a normal cell. These two indications enable us to explain clearly the difference in level between a normal and a cancer cell.

First of all, let us classify the levels of cells into a normal and a cancer cell level. Section 8 has indicated that although a cancer cell has three-dimensional stability, a normal cell does not have it. Furthermore, systems belonging to different levels usually show different characters. Thus, according to the difference in cellular stability, cells can be classified into two groups: one is a cell belonging to a normal cell level, and the other is a cell belonging to a cancer cell level. That is, a normal and a cancer cell belong to different cellular levels.

Next, check the difference in the level height between a normal and a cancer cell. Section 7 has concluded that a cancer cell contains a large amount of momentum compared with a normal cell. In addition, the concept of "level" means the relative position or the rank on a scale, and enables us to explain the difference in momentum between a normal and a cancer cell. For the reasons, it is indicated as follows: "A cancer cell belongs to a level higher than that of a normal cell." In other words, a cancer cell level is higher than a normal cell level.

All in all, the reasons above allow us to conclude that a cancer cell belongs to a level next higher than that of a normal cell. According to the difference in cellular stability, the levels of cells can be classified into a normal and a cancer cell level. Besides, a cancer cell contains a large amount of momentum compared with a normal cell, and can be considered to belong to a level higher than that of a normal cell. Thus, it can be determined that a cancer cell belongs to a next higher level than that of a normal cell. Importantly, this conclusion reveals that a cancer cell can work as not an abnormal cell but one of the normal cells in a human body.

Fig. 10. Difference in level between a normal and a cancer cell



Theoretically, it can be concluded that a cancer cell belongs to a level next higher than that of a normal cell. According to the difference in cellular stability, the levels of cells can theoretically be classified into a normal and a cancer cell level. Besides, paying attention to the difference in momentum between normal and cancer cells enables us to indicate as follows: "A cancer cell contains a large amount of momentum compared with a normal cell, and belongs to a level higher than that of a normal cell." All in all, a cancer cell, as shown in the figure right above, can be considered to belong to a level next higher than that of a normal cell. For example, assuming that a normal cell belongs to level-N enables us to indicate that a cancer cell belongs to level-(N+1).

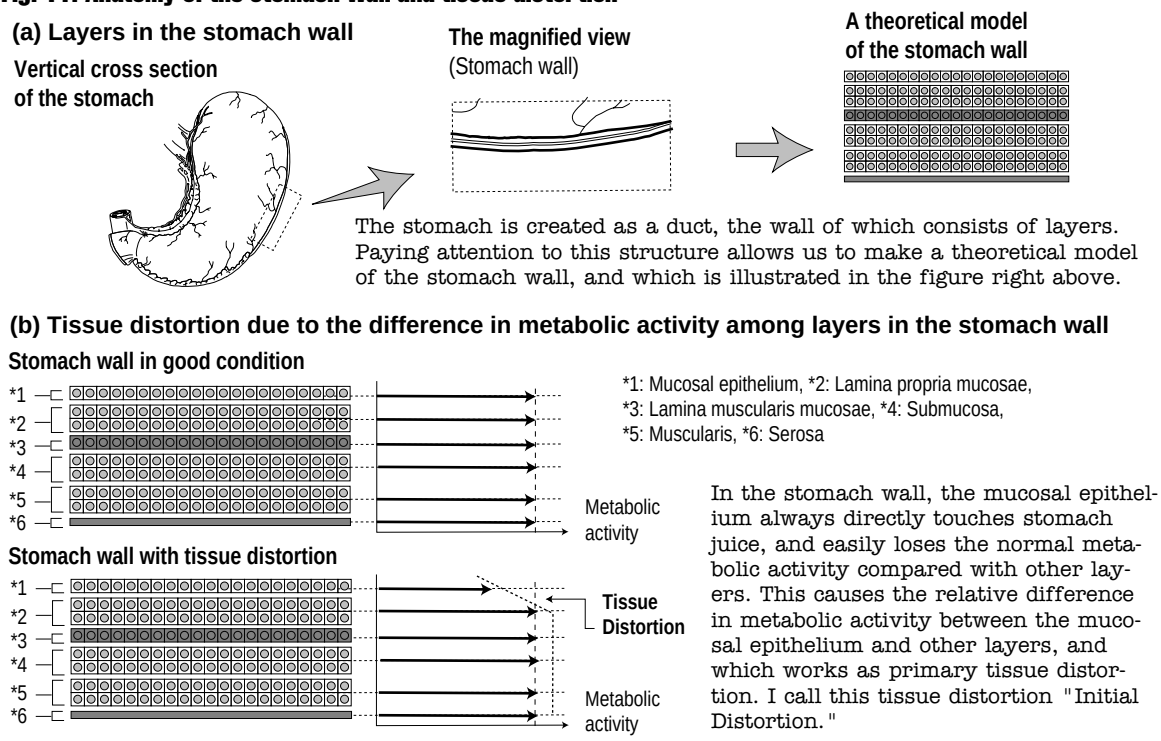
(10) Anatomy of The Stomach and Tissue Distortion Frequently Occurring in The Stomach

The stomach is created as a duct, the wall of which consists of several layers; this structure plays a major role in causing tissue distortion. The surface layer, which indicates the mucosal epithelium, always directly touches gastric juice, so that it easily loses the normal metabolic activity. Different from the mucosal epithelium, other layers, such as the lamina propria mucosae, the lamina muscularis mucosae and so on, do not directly touch stomach juice, so that they do *not* easily lose the normal metabolic activity. By this mechanism, the stomach wall will often cause the relative difference in metabolic activity between the mucosal epithelium and other layers. Just this relative difference in metabolic activity works as primary tissue distortion. I call this tissue distortion "Initial Distortion."

Notice that this type of tissue distortion can also be found in other hollow organs in a human body. Organs in a human body can roughly be classified into two types: hollow and solid organs. Of these two types of organs, hollow organs will often cause the same type of tissue distortion just like the stomach causes. Why? This is because a hollow organ is created as a duct or a sack, the wall of which consists of layers. Thus, hollow organs, which are the bronchus, the alimentary tract, the gallbladder, the bile duct, the urinary bladder, the uterus, the vagina and so on, cause the same tissue distortion as the stomach causes. That is, this type of tissue distortion can be considered one of the representative tissue distortions caused in a human body. I call this tissue distortion "Layer Distortion," because its fundamental cause originates in layers forming the wall in an organ.

(A solid organ, different from a hollow organ, can be considered to usually cause tissue distortion due to the irregularity in fractalism or due to the relative difference in metabolic activity between the parenchymal and the interstitial cells. I call them "Fractal Distortion" and "P/I Distortion" respectively.)

Fig. 11. Anatomy of the stomach wall and tissue distortion



(11) Two Kinds of Forces that Can Oppress An Organ

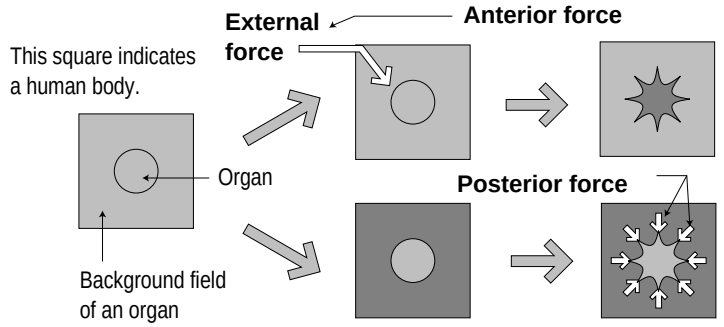
There are two kinds of forces that oppress an organ. One is anterior force; the other is posterior force. Understanding these two kinds of forces is essential to analyze different types of gastric cancers: adenocarcinoma and signet ring cell adenocarcinoma. Thus, let us check the difference between these two forces.

Anterior force indicates a force that oppresses an organ from the external field of a human body. Representative anterior forces are foods, weather, chemical substances contained in air and in foods, stress, and so on. For instance, an epidemiological result about gastric cancer has pointed out that a person who frequently takes foods containing much salt increases the frequency of gastric cancer. In this epidemiological result, foods containing much salt can be considered to work as an anterior force that affects the stomach. Thus, we can say as follows: "When the stomach is continuously affected by this anterior force, it will often cause atrophic gastritis, followed by causing gastric cancer." As seen in this example, anterior force indicates a force occurring from the external field of a human body and oppressing an organ in the human body.

On the other hand, posterior force indicates a force that oppresses an organ from the background organs. When an organ shows strong change, its fundamental cause often originates not in the organ itself but in the background organs. For instance, when a group of organs changes the momentum, it causes the imbalance in momentum with the foreground organ. This imbalance in momentum works as a force, which oppresses the foreground organ. That is, different form anterior force, this force is transmitted from the background field of an organ to the organ, and appears to oppress an organ from the behind. This is the reason why I call this force "Posterior Force."

Importantly, these two kinds of forces, anterior and posterior force, control whether the stomach causes adenocarcinoma arising from the mucosal epithelium or signet ring cell adenocarcinoma arising from the lamina propria mucosae. Usually when the stomach with tissue distortion is oppressed by anterior force and amplifies the tissue distortion, it causes cancer in the mucosal epithelium. This cancer indicates adenocarcinoma: gastric cancer resulting from atrophic gastritis. On other hand, when the stomach with the same tissue distortion, which has the potential of causing adenocarcinoma, is oppressed by posterior force and amplifies the tissue distortion, it causes cancer in the lamina propria mucosae. This cancer indicates signet ring cell adenocarcinoma. In short, the difference in force oppressing the stomach divides gastric cancers between adenocarcinoma and signet ring cell adenocarcinoma. The figures below explain the difference between anterior and posterior force.

Fig. 12. Two kinds of forces that oppress an organ



There are two types of forces that oppress an organ. I call them "Anterior Force" and "Posterior Force."

Anterior force means a force oppressing an organ from the external field of a human body.

Posterior Force means a force oppressing an organ from the background field.

Distinguishing between anterior and posterior force is not only essential to analyze different types of gastric cancers: adenocarcinoma and signet ring cell adenocarcinoma, but also important to analyze serious diseases including chronic diseases. Many serious diseases can be considered to occur on the basis of posterior force. Thus, it is important to distinguish between anterior and posterior force.

III. Theoretical Analyses of Gastric Cancers

Now, by using the theoretical indications already obtained in the preceding chapter, let us analyze theoretically three types of gastric cancers: adenocarcinoma arising from the mucosal epithelium, signet ring cell adenocarcinoma arising from the lamina propria mucosae, and leiomyosarcoma arising from the lamina muscularis mucosae.

III-a. Theoretical Analysis of Adenocarcinoma Arising from The Mucosal Epithelium

First of all, let us analyze theoretically how the stomach with atrophic gastritis causes adenocarcinoma in the mucosal epithelium. This process can be divided into three steps. At the first step, the stomach causes primary tissue distortion in between the mucosal epithelium and the lamina propria mucosae. At the next step, the stomach amplifies the tissue distortion by decreasing the momentum. At the last step, when the stomach cannot bear the tensile strength of the amplified tissue distortion, it causes a tumor at the peak of the amplified tissue distortion. This tumor indicates adenocarcinoma.

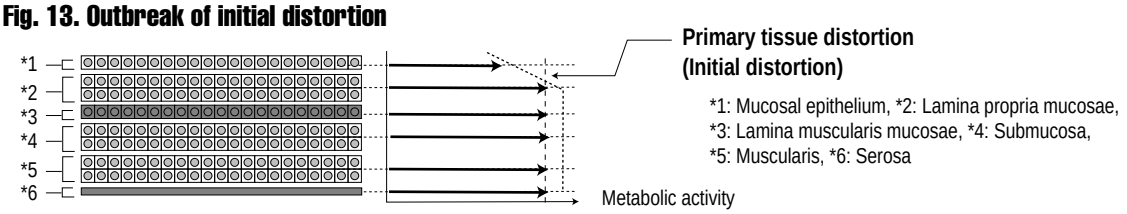
(1) Outbreak of Tissue Distortion (Outbreak of Initial Distortion)

The stomach causes primary tissue distortion when only the mucosal epithelium loses the normal metabolic activity. The stomach is created as a duct, the wall of which consists of several layers. In addition, the mucosal epithelium always directly touches stomach juice, and easily decreases the normal metabolic activity. Thus, the mucosal epithelium easily causes the imbalance in metabolic activity with other layers. This imbalance in metabolic activity works as primary tissue distortion. I call this tissue distortion "Initial Distortion."

(2) Amplification of Tissue Distortion (Outbreak of Secondary Distortion)

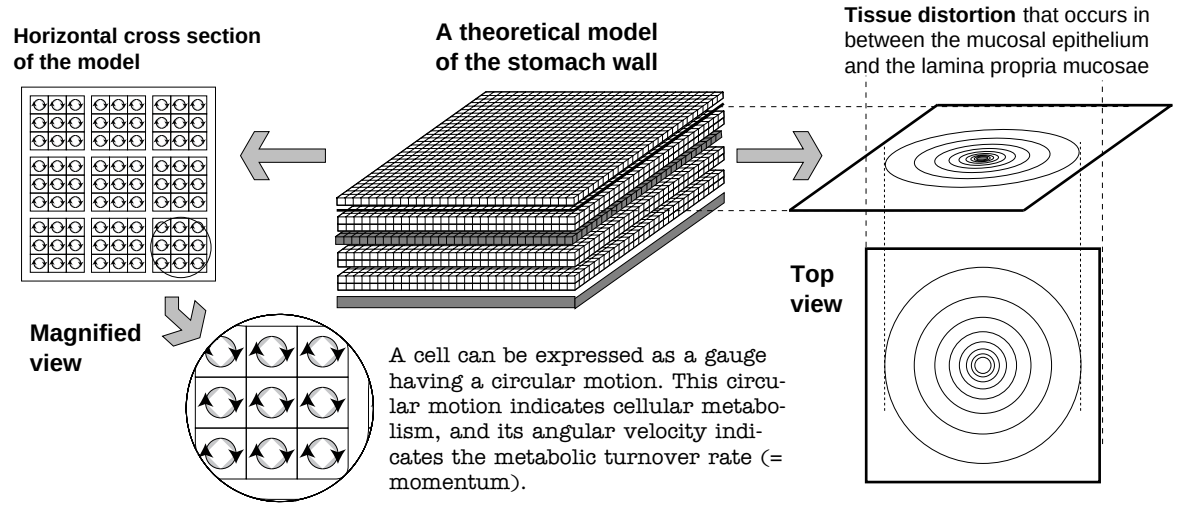
When the stomach with initial distortion strongly decreases the momentum, it amplifies the initial distortion. When the stomach decreases the momentum and reduces the energy density, it becomes atrophied to regain the energy density. However, when the stomach continues decreasing the momentum and in addition cannot become atrophied anymore, it starts amplifying initial distortion already caused in the stomach wall. Importantly, in this process, the stomach wall amplifies initial distortion *stepwise*, because metabolism in an organ is controlled by fractalism. I call this amplified initial distortion "Secondary Distortion" and distinguish it from "Initial Distortion."

Fig. 13. Outbreak of initial distortion

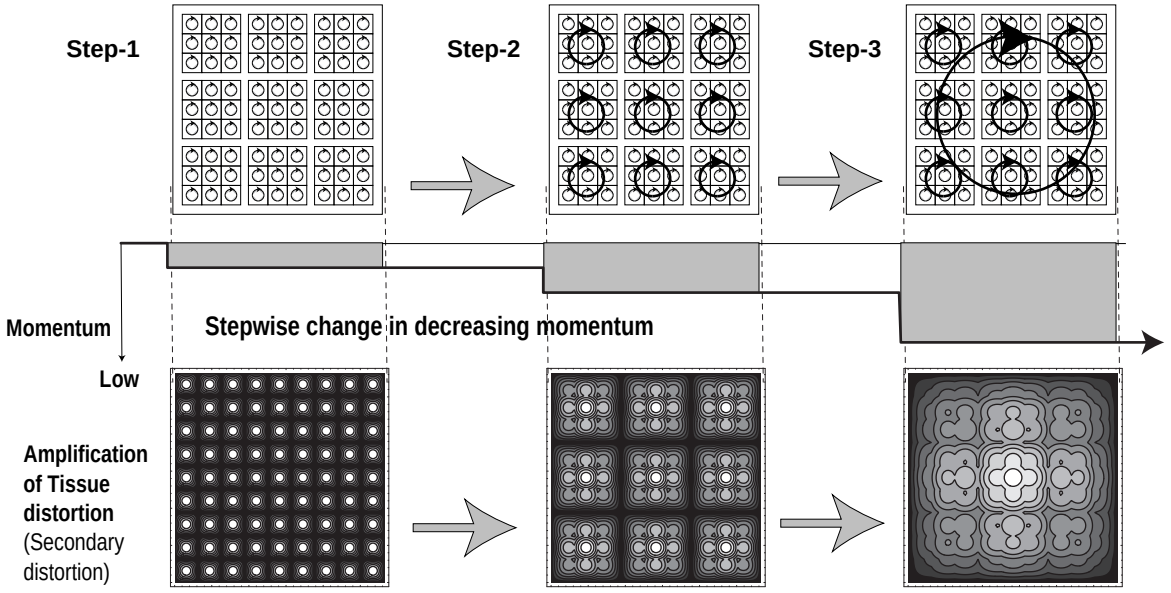


The stomach wall easily causes tissue distortion in between the mucosal epithelium and the lamina propria mucosae. In the stomach wall, the mucosal epithelium always directly touches stomach juice, and tends to easily decrease the metabolic activity. In contrast, other layers do not touch stomach juice, and tend to maintain the normal metabolic activity. This causes the relative difference in metabolic activity between the mucosal epithelium and the lamina propria mucosae, and which works as primary tissue distortion.

Fig. 14. Amplification of tissue distortion (Outbreak of secondary distortion)



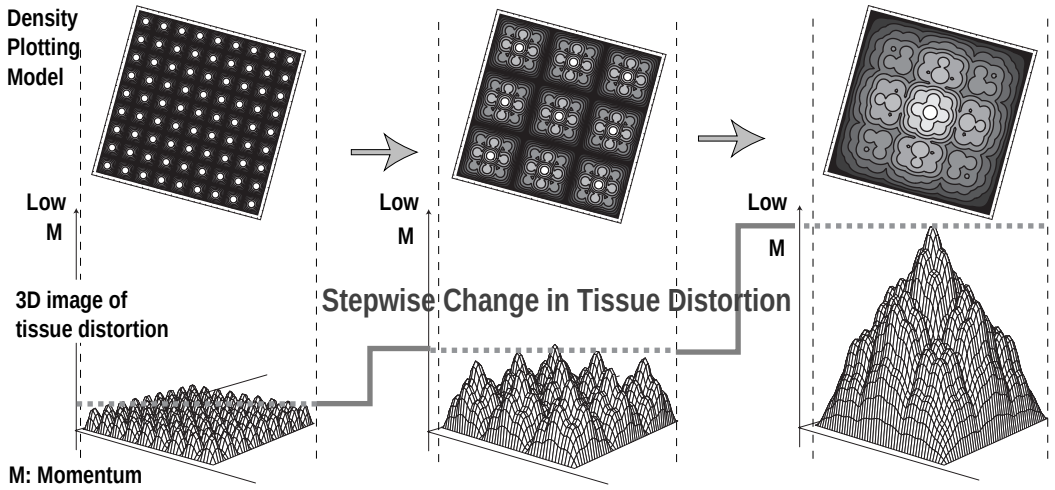
Step-1: First of all, the stomach wall decreases the momentum by using the smallest units; then, it causes very-small secondary distortion. **Step-2:** Next, the stomach wall decreases the momentum also by using the secondary-smallest units; then, it causes a little larger secondary distortion. **Step-3:** After that, the stomach wall decreases the momentum also by using the third-smallest units; then, it causes large secondary distortion compared with that at step-2.



Stepwise change in amplifying tissue distortion that occurs in between the mucosal epithelium and the lamina propria mucosae

Through these steps, the stomach wall with tissue distortion amplifies the tissue distortion stepwise. When the stomach with tissue distortion decreases the momentum, it amplifies the tissue distortion step by step because of the fractal structure. I call this amplified initial distortion "Secondary Distortion.

Fig. 15. 3D image of tissue distortion (3D Image of Secondary distortion)



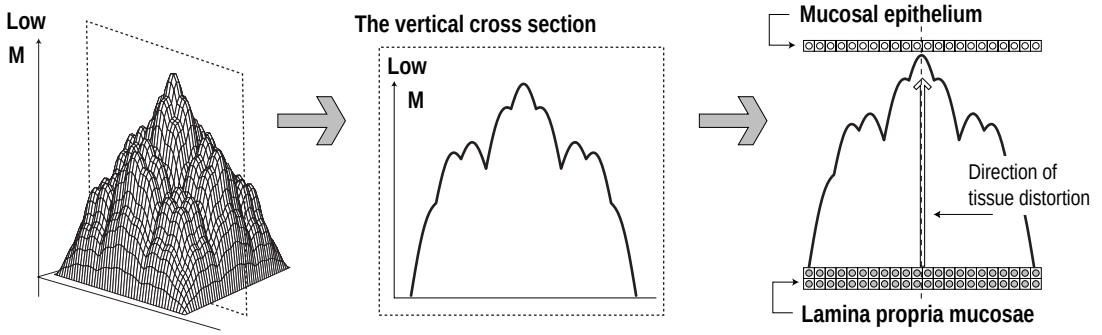
Tissue distortion, which has occurred in between the mucosal epithelium and the lamina propria mucosae, enlarges the size step by step. The figures above, which are three-dimensional images of tissue distortions (secondary distortion), clearly show the stepwise change in enlarging tissue distortion.
Notes: Fractalism allows a human body to measure the size of a damaged field. Implanting a film sheet, only the size of which is more than 2 centimeter square, under mouse skin enables us to induce cancer in the mouse skin. This reveals that mammals have the ability to measure the size of a damaged field. In this process, mammals must, by using the fractalism, measure the size of a damaged field. Of course, this mechanism can also be applied to a human body, because a human being belongs to the mammals.

(3) Direction of The Amplified Distortion (Direction of This Secondary Distortion)

In the case of adenocarcinoma resulting from atrophic gastritis, the secondary distortion (= the amplified tissue distortion) is in the direction from the lamina propria mucosae to the mucosal epithelium. This stomach wall amplifies the tissue distortion by *decreasing* the momentum. In this process, the mucosal epithelium has decreased the metabolic activity, so that it strongly decreases the momentum. In contrast, the lamina propria mucosae, different from the mucosal epithelium, maintains good metabolic activity, so that it decreases the momentum in parallel to the momentum contained in the stomach wall. By these mechanisms, secondary distortion at adenocarcinoma enlarges in the direction from the lamina propria mucosae to the mucosal epithelium.

Importantly, the direction of secondary distortion plays a role in deciding where cancer occurs. Cancer, as explained before, occurs at the peak of strong tissue distortion. Additionally, in the case of adenocarcinoma, the secondary distortion is in the direction from the lamina propria mucosae to the mucosal epithelium, and its peak is in the mucosal epithelium. Thus, in the case of adenocarcinoma, when the stomach with tissue distortion strongly amplifies the tissue distortion by decreasing the momentum, it will next cause cancer in the mucosal epithelium nearby the lamina propria mucosae. As seen in this process, the stomach wall decides the outbreak point of cancer according to the direction of secondary distortion.

Fig. 16. Direction of the amplified tissue distortion (Direction of secondary distortion)



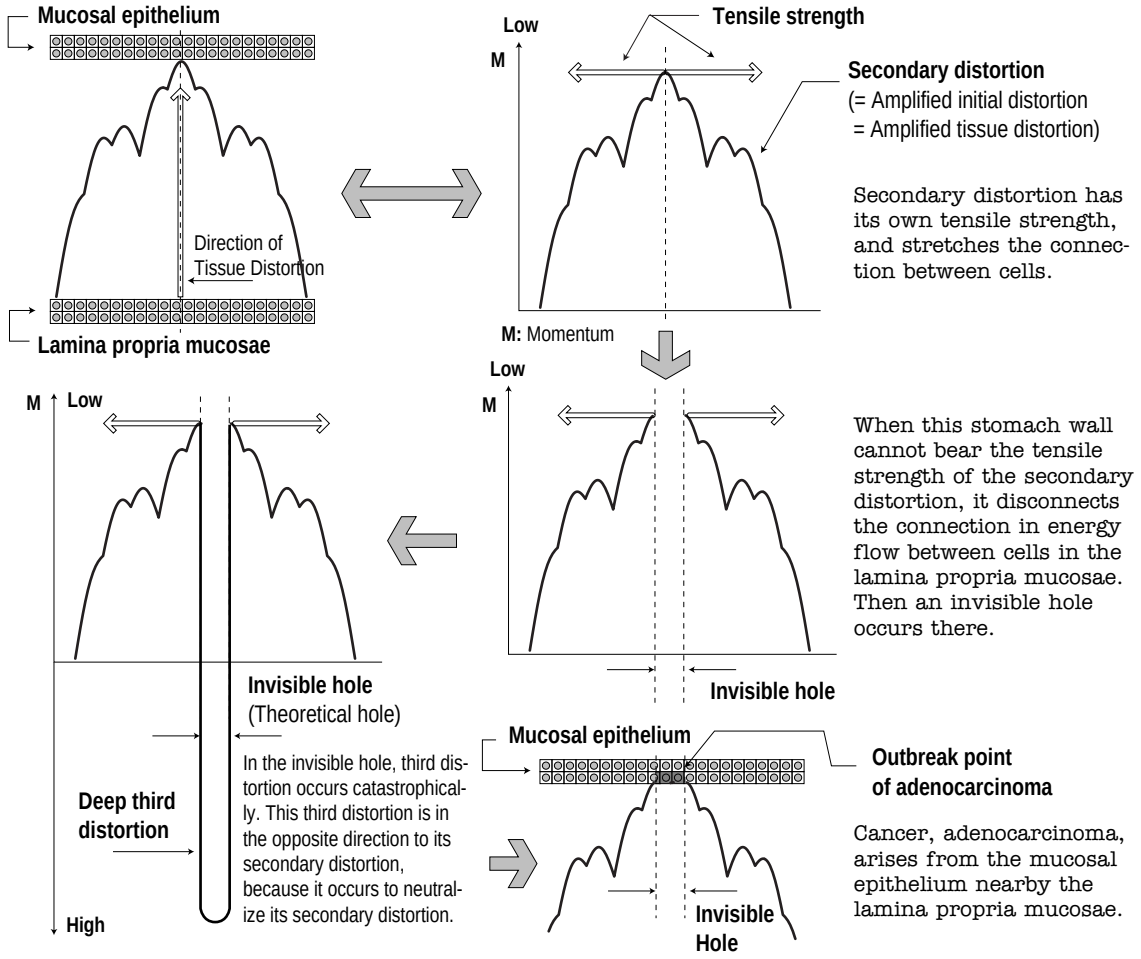
This stomach wall causes cancer in the mucosal epithelium nearby the lamina propria mucosae. Cancer occurs at the peak of strong tissue distortion. On the other hand, in this stomach wall, the amplified tissue distortion (secondary distortion) is in the direction from the lamina propria mucosae to the mucosal epithelium, and in addition its peak is in the mucosal epithelium nearby the lamina propria mucosae. Thus, at the next step, this stomach wall will cause cancer in the mucosal epithelium nearby the lamina propria mucosae. That is, the direction of amplified tissue distortion (secondary distortion) plays a major role in deciding where cancer occurs.

(4) Outbreak of Adenocarcinoma (Outbreak of Third Distortion)

When the stomach cannot bear the tensile strength of the secondary distortion, it causes cancer at the peak of the secondary distortion. Secondary distortion has its own tensile strength, and stretches the connection between cells. In addition, strong secondary distortion can theoretically be considered to have the ability to cut the connection in energy flow at the peak of the secondary distortion. Thus, when the stomach wall cannot bear the tensile strength of the secondary distortion, it disconnects the connection in energy flow and then causes an invisible hole there. (I call this hole "Theoretical Hole.") In this invisible hole, as if a tropical cyclone causes an eye, the stomach wall also causes new deep tissue distortion in order to neutralize the secondary distortion. This new tissue distortion has the ability to transform its own containing cells into new cells: tumor cells. I call this new tissue distortion "Third Distortion," and distinguish it from Initial and Secondary Distortion.

If so, why can third distortion cause cancer? Third distortion occurs catastrophically, and has no connection in energy flow with secondary distortion. Thus, cells in third distortion can freely change their cellular character without any effects of cells around the third distortion. As a result, when the stomach causes third distortion, it causes a space consisting of new cells. Just this space indicates a tumor. Indeed, it is third distortion to control the transformation a normal gene into an oncogene.

Fig. 17. Outbreak of adenocarcinoma (Outbreak of third distortion)

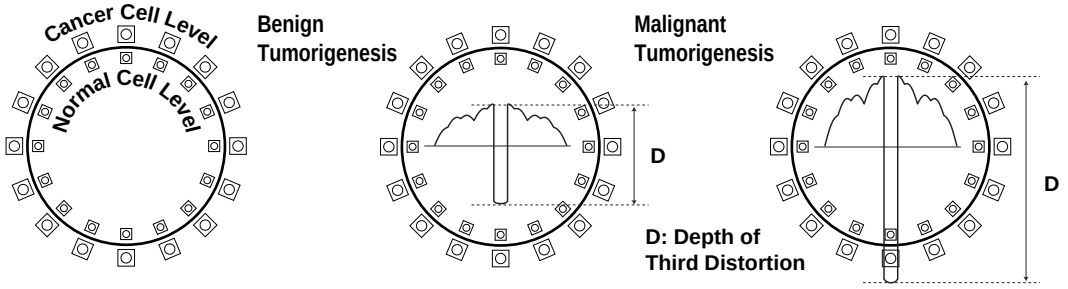


In the case of adenocarcinoma resulting from atrophic gastritis, third distortion usually occurs to neutralize the secondary distortion. In this case, the stomach wall decreases the momentum, so that it waits for a chance of regaining the momentum. Thus, when the stomach wall causes an invisible hole, it next causes, in the invisible hole, new tissue distortion containing a large amount of momentum in order to neutralize the secondary distortion. This new tissue distortion is third distortion, and transforms its own containing cells into new cells, each of which has a large amount of momentum. Notice that just the new cells indicate cancer cells: adenocarcinoma cells.

Importantly, the depth of third distortion divides a tumor between a benign and a malignant tumor. Shallow third distortion has the ability to transform its containing cells into benign tumor cells; deep one has the ability to transform its containing cells into malignant cells. Thus, in the case of adenocarcinoma, the stomach wall can be considered to have caused deep third distortion which has the ability to cause cancer.

Now, a question arises; “Why can shallow and deep third distortion cause a benign and a malignant tumor respectively?” A cancer cell contains a large amount of momentum compared with a normal cell, and belongs to a level next higher than that of a normal cell. In addition, third distortion has the ability to carry the containing cells to a new level. Thus, shallow third distortion can carry its own containing cells to a level within a normal cell level, and then transforms the cells into benign tumor cells; in contrast, deep one can carry its own containing cells to a level higher than a normal cell level, and then transforms the cells into cancer cells.

Fig. 18. The depth of third distortion and the types of tumorigeneses



The depth of third distortion controls whether the third distortion causes a benign or a malignant tumor. A cancer cell belongs to a level next higher than that of a normal cell. In addition, shallow third distortion carries the containing cells to a level within a normal cell level; deep one carries the containing cells to a level going over a normal cell level. Thus, shallow third distortion causes a benign tumor; deep third distortion causes a malignant tumor.

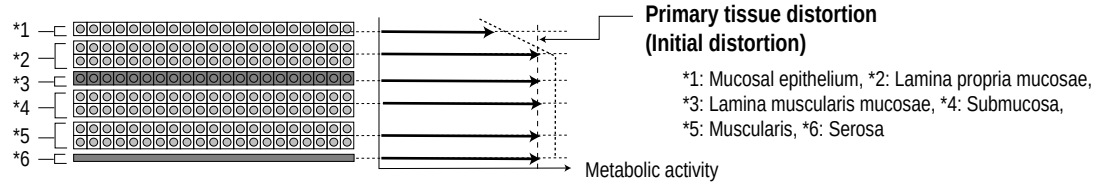
III-b. Theoretical Analysis of Signet Ring Cell Adenocarcinoma

Next, let us also analyze theoretically how the stomach causes signet ring cell adenocarcinoma. This process can be divided into four steps. At the first step, the stomach causes primary tissue distortion in between the mucosal epithelium and the lamina propria mucosae. At the next step, background organs of the stomach raise their momenta, and cause the imbalance in momentum with the stomach. This imbalance in momentum works as a posterior force that can oppress the stomach. At the third step, the stomach is oppressed by the posterior force, and amplifies the primary tissue distortion by increasing the momentum. At the last step, the stomach causes a tumor at the peak of the amplified tissue distortion when it cannot bear the tensile strength of the amplified tissue distortion. This cancer, signet ring cell adenocarcinoma, arises from the lamina propria mucosae, because the peak of this amplified tissue distortion is in the lamina propria mucosae nearby the mucosal epithelium.

(1) Outbreak of Tissue Distortion (Outbreak of Initial Distortion)

The stomach causes primary tissue distortion when only the mucosal epithelium loses the normal metabolic activity. The stomach, as already explained, is created as a duct, the wall of which consists of layers. In addition, the mucosal epithelium always directly touches stomach juice and tends to decrease the normal metabolic activity; in contrast, other layers do not directly touch stomach juice and tend not to easily decrease their normal metabolic activity. By this mechanism, the mucosal epithelium easily causes the imbalance in metabolic activity with other layers. This imbalance in metabolic activity works as primary tissue distortion: initial distortion. Notice that this initial distortion is quite the same as that in the case of adenocarcinoma.

Fig. 19. Outbreak of initial distortion



Initial distortion occurs on the basis of the imbalance in metabolic activity between the mucosal epithelium and other layers. The mucosal epithelium always directly touches stomach juice, and tends to easily decrease the metabolic activity. However, even when the mucosal epithelium decreases the metabolic activity because of stomach juice, other layers do not directly touch stomach juice and tend to maintain the normal metabolic activity. This causes the relative difference in metabolic activity between the mucosal epithelium and other layers, and which work as primary tissue distortion: initial distortion. That is, this initial distortion is quite the same as that at adenocarcinoma.

(2) Occurrence of Posterior Force

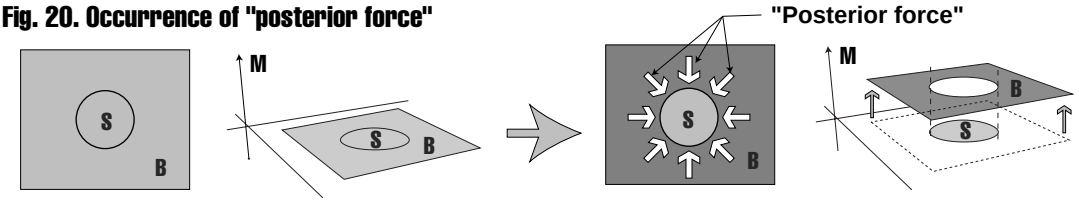
When background organs of the stomach raise their momenta simultaneously, they cause a posterior force that

can oppress the stomach. When background organs of the stomach raise their momenta simultaneously, they cause the imbalance in momentum with the stomach. This imbalance in momentum works as a force, which oppresses the stomach. Then, by this force, the stomach raises the momentum, and amplifies the initial distortion which has already caused in the stomach wall. Just this force indicates a posterior force that can oppress the stomach.

Interestingly, in this case, although the stomach only relatively reduces the momentum compared with the background field, it appears to raise the momentum for itself. Certainly, it is not the stomach but the background field to firstly change the momentum. However, the background field usually has large volume compared with the stomach. Thus, nevertheless the stomach in this condition *only relatively* reduces the momentum compared with the background field, it appears to reduce the momentum *for itself*. By this mechanism, this stomach starts raising the momentum to neutralize the imbalance in momentum with the background field.

Notice that such a special characteristic of posterior force prevents us from finding out the existence of posterior force. Even when an organ oppressed by posterior force raises the momentum, it appears to raise the momentum for itself. Additionally, the majority of medical examinations have been made only to find out where strong change occurs; in contrast, organs causing posterior force only show weak change. Thus, by using medical examinations, even when medical doctors can succeed in finding out an organ showing strong change, they will be unable not only to determine whether the fundamental cause originates in the organ or in the background organs, but also to ascertain the existence of posterior force. However, posterior force certainly exists in a human body, and plays a major role in causing various kinds of diseases including gastric scirrhus. In fact, the recognition of posterior force is indeed important to analyze diseases, especially serious ones.

Fig. 20. Occurrence of "posterior force"



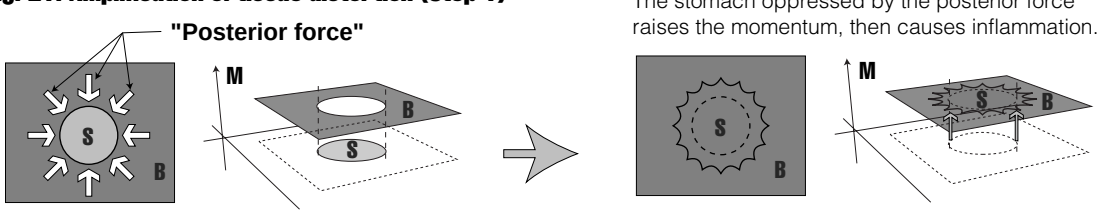
S: Stomach, **B**: Background field of the stomach, **M**: Momentum

"Posterior Force" occurs when the background field of an organ changes the momentum. When the background field of the stomach raises, for instance, its momentum, it causes the imbalance in momentum with the stomach. This imbalance in momentum works as a force, which oppresses the stomach. Interestingly, this force appears to oppress the stomach from the behind. This is the reason why I call this force "Posterior Force."

(3) Amplification of Tissue Distortion (Outbreak of Secondary Distortion)

When a posterior force occurs between the stomach and the background field, it starts oppressing the stomach and amplifying initial distortion already caused in the stomach wall. The stomach always balances itself with the background field, so that when the background field of the stomach raises the momentum, it causes the imbalance in momentum with the stomach. Just this imbalance in momentum works as a posterior force for the stomach. Then, by this posterior force, the stomach starts raising the momentum; that is, this stomach causes inflammation. In addition to this condition, also when this stomach has already caused primary tissue distortion: initial distortion, it amplifies the initial distortion by increasing the momentum. This amplified initial distortion indicates secondary distortion, which stepwise enlarges the size because metabolism in an organ is controlled by fractalism. As seen in this process, when the stomach with tissue distortion is oppressed by this posterior force, it stepwise amplifies the tissue distortion by raising the momentum.

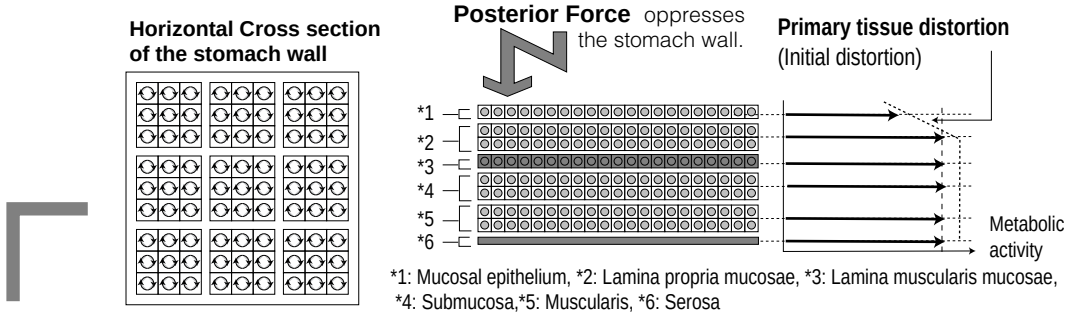
Fig. 21. Amplification of tissue distortion (Step-1)



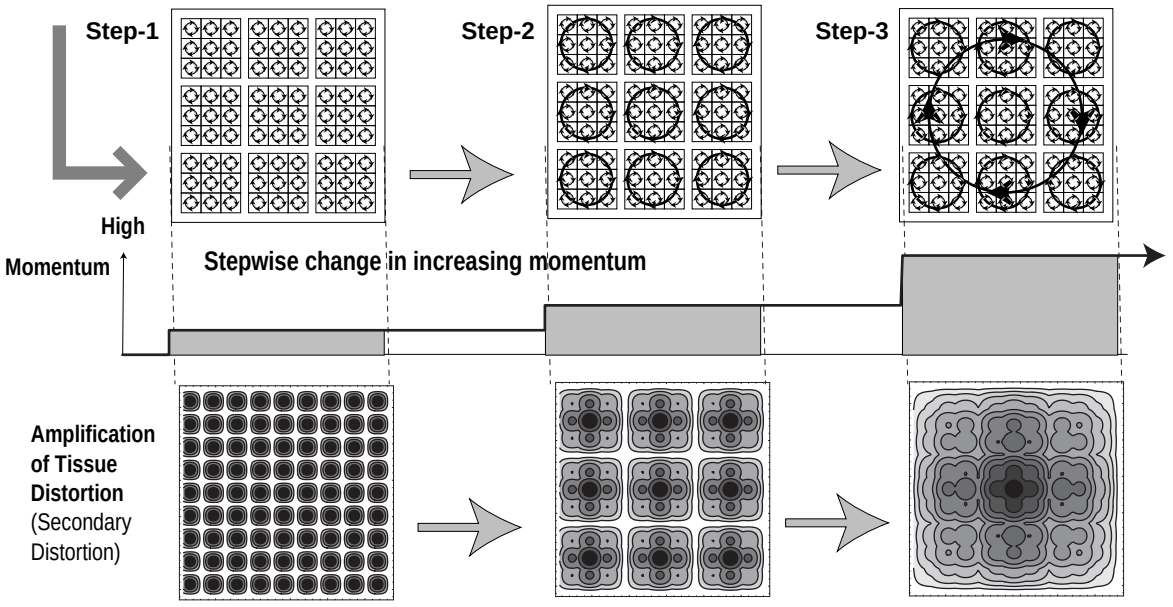
S: Stomach, **B**: Background field of the stomach, **M**: Momentum

When the stomach with primary tissue distortion (initial distortion) is oppressed by posterior force, it starts amplifying the primary tissue distortion. When the background field of the stomach raises its momentum, it causes the imbalance in momentum with the stomach. This imbalance in momentum works as a posterior force for the stomach. Then, by this posterior force, the stomach with primary tissue distortion increases the momentum, followed by amplifying the tissue distortion.

Fig. 22. Amplification of tissue distortion (step-2)



Step-1: First of all, the stomach wall with initial distortion increases the momentum by using the smallest units; then, it causes very-small secondary distortion. **Step-2:** Next, the stomach wall increases the momentum also by using the secondary-smallest units; then, it causes a little larger secondary distortion. **Step-3:** After that, the stomach wall increases the momentum also by using the third-smallest units; then, it causes large secondary distortion compared with that at step-2. Through these steps, the stomach wall with initial distortion amplifies the tissue distortion stepwise.



Stepwise change in amplifying tissue distortion that occurs in between the mucosal epithelium and the lamina propria mucosae

(4) Direction of This Amplified Tissue Distortion (Direction of This Secondary Distortion)

Importantly, this amplified initial distortion (= secondary distortion) is in the opposite direction to that seen in the pre-carcinogenic stomach wall at adenocarcinoma. In the case of adenocarcinoma, the stomach with initial distortion *decreases* the momentum, so that it amplifies the distortion *by decreasing* the momentum. Against of this, in the case of signet ring cell adenocarcinoma, the stomach with the same initial distortion *increases* the momentum, so that it amplifies the distortion *by increasing* the momentum. Because of this difference in amplification mechanism, the stomach wall at signet ring cell adenocarcinoma causes secondary distortion that is opposite in direction to the secondary distortion at adenocarcinoma. Specifically, in the case of signet ring cell adenocarcinoma, the secondary distortion is in the direction from the mucosal epithelium to the lamina propria mucosae.

Fig. 23. The Direction of Secondary Distortion

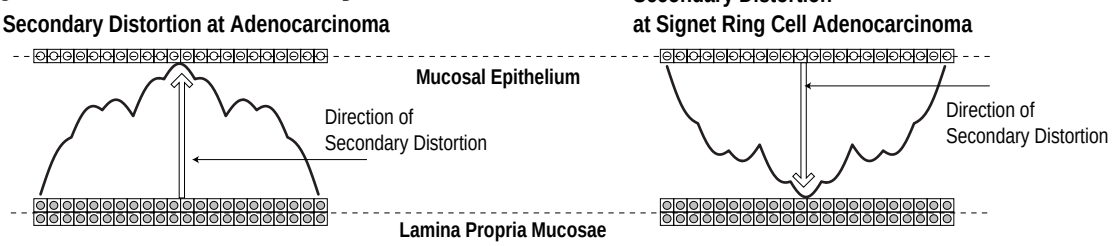


Fig. 24. 3D Image of tissue distortion (3D Image of Secondary distortion)

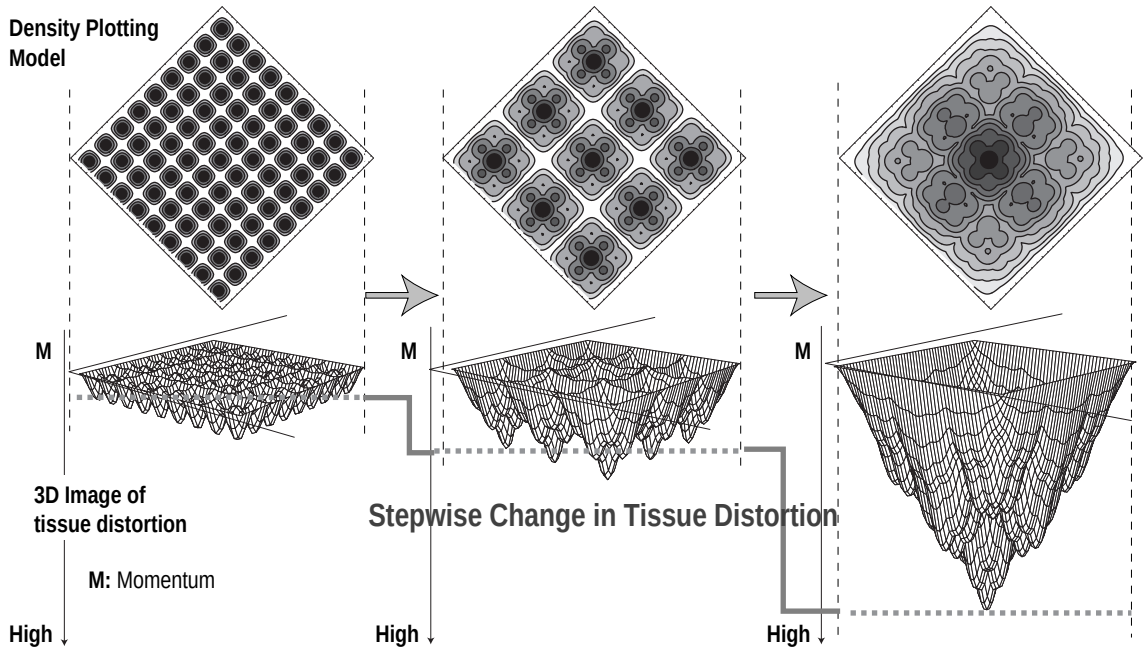
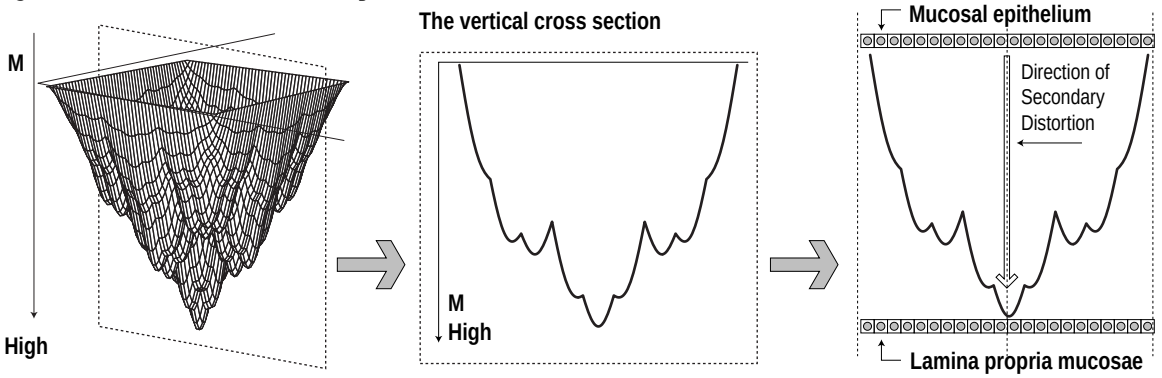


Fig. 25. Direction of this secondary distortion



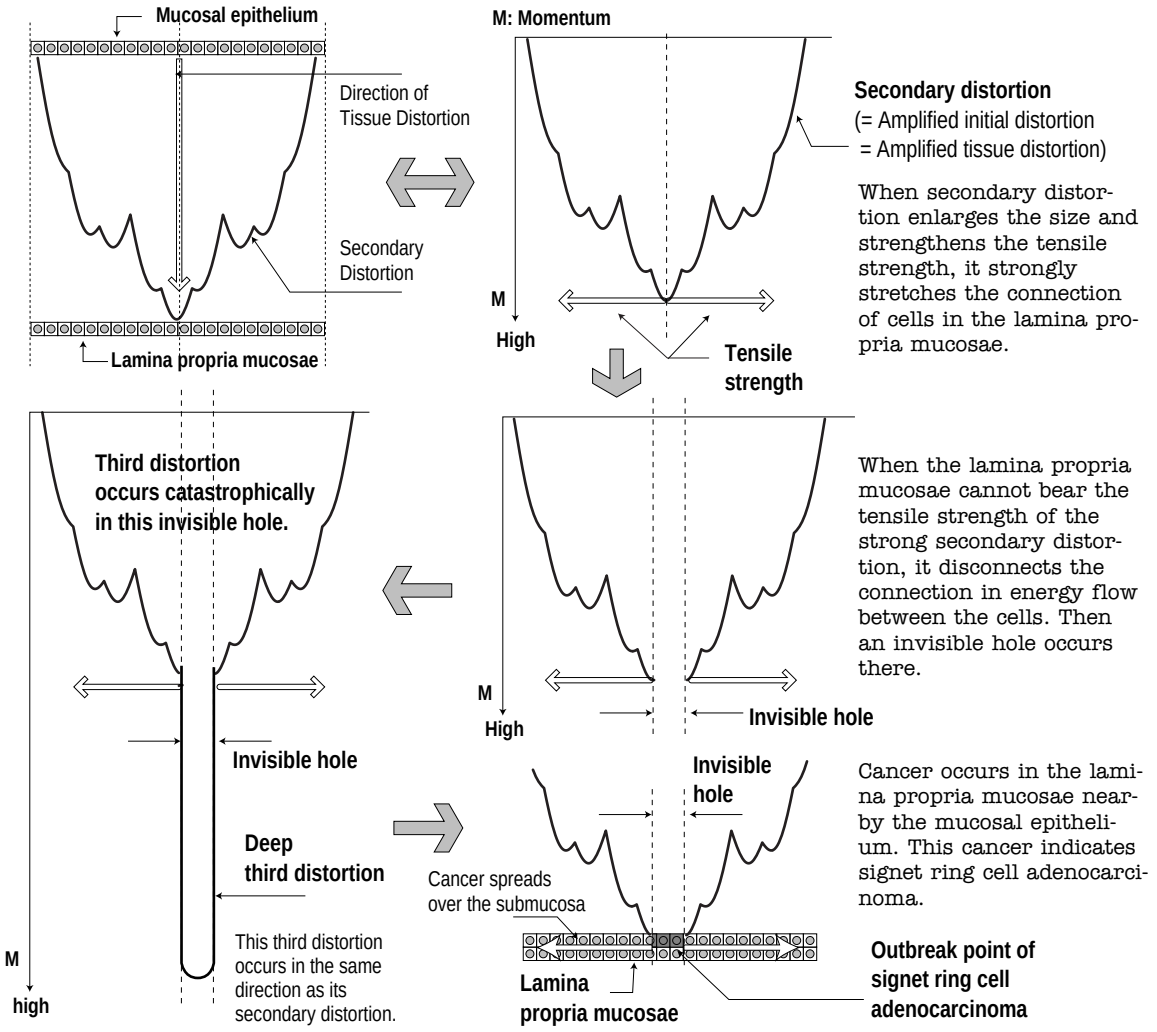
This amplified tissue distortion, secondary distortion, is in the direction from the mucosal epithelium to the lamina propria mucosae. The mucosal epithelium has decreased the metabolic activity, and tends **not** to easily raise the momentum. In contrast, the lamina propria mucosae maintains the normal metabolic activity, and tends to easily increase the momentum. Thus, when this stomach wall is oppressed by the posterior force which has occurred at the preceding step, it increases the momentum, followed by causing secondary distortion that is in the direction from the mucosal epithelium to the lamina propria mucosae. Notice that this secondary distortion is opposite in direction to that in the case of adenocarcinoma.

(5) Outbreak of Signet Ring Cell Adenocarcinoma (Outbreak of Third Distortion)

When the stomach wall cannot bear the tensile strength of the amplified tissue distortion: secondary distortion, it causes cancer at the peak of the secondary distortion; that is, this cancer occurs in the lamina propria mucosae nearby the mucosal epithelium. In this case, the stomach wall has caused strong secondary distortion, which is in the direction from the mucous epithelium to the lamina propria mucosae. Thus, when the stomach wall cannot bear the tensile strength of the secondary distortion, it disconnects the connection in energy flow between cells in the lamina propria mucosae; then, an invisible hole occurs there. Additionally, even after the stomach wall caused an invisible hole, it is continuously oppressed by the posterior force which has already occurred at the preceding step. Thus, the stomach wall causes, in the invisible hole, new tissue distortion also by raising the momentum. This new tissue distortion, which indicates third distortion, transforms its containing cells into new cells: signet ring cell adenocarcinoma cells. Through this process, the stomach causes signet ring cell adenocarcinoma in the lamina propria mucosae nearby the mucosal epithelium.

Notice that this new distortion, third distortion, is in the same direction as its secondary distortion. Although third distortion at adenocarcinoma is in the opposite direction to its secondary distortion, third distortion at signet ring cell adenocarcinoma is in the same direction as its secondary distortion. This is also one of the important different points between adenocarcinoma and signet ring cell adenocarcinoma.

Fig. 26. Outbreak of third distortion (Outbreak of signet ring cell adenocarcinoma)



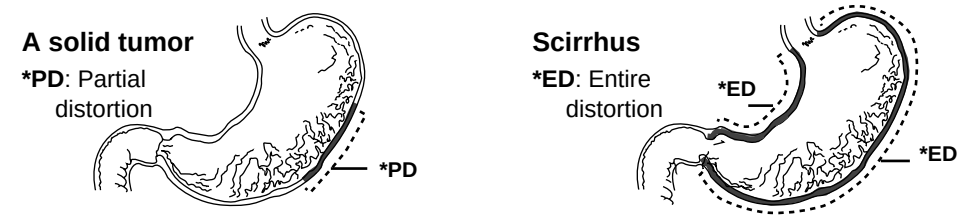
This stomach wall causes cancer in the lamina propria mucosae nearby the mucosal epithelium. Even after this stomach wall causes third distortion, it is oppressed by the posterior force and continues raising the momentum. Thus, different from the stomach wall at adenocarcinoma, this stomach wall causes third distortion that is in the same direction as its secondary distortion which has already caused at the preceding step. This third distortion transforms its own containing cells into cancer cells, which appear in the lamina propria mucosae. Importantly, as long as the stomach wall is oppressed by the posterior force, this cancer continues enlarging the size and then spreads over the lamina propria mucosae. As a result, this cancer forms scirrhus.

(6) Difference in Mechanism between A Solid Tumor and Scirrhus

In general, signet ring cell adenocarcinoma forms two types of tumors: a solid tumor and scirrhus. This fundamental cause can theoretically be considered to originate in the difference in the size of primary tissue distortion: initial distortion. When the stomach wall causes initial distortion in the partial wall, it will cause a solid tumor. In contrast, when the stomach wall causes initial distortion equally in the whole of the wall, it will cause scirrhus. In short, the difference in the field size of initial distortion plays a major role in dividing signet ring cell adenocarcinoma between a solid tumor and scirrhus.

This indication can also be applied to the epidemiologic survey of scirrhus. Medical science has pointed out that gastric scirrhus frequently occurs in a person whose age and gender are about thirty and female respectively. Why? The majority of persons (men and women) at about thirty years old must have already caused moderate initial distortion equally in the whole area of the stomach wall. In addition, women at about thirty years old can be considered to often cause congestion in sexual organs; this congestion can work as a posterior force for the stomach. This suggests that this posterior force, which is transmitted from sexual organs to the stomach, often amplifies the moderate initial distortion occurring in the stomach wall and then causes gastric scirrhus. That is, because women whose ages are about thirty years old have usually caused moderate initial distortion in the whole area of the stomach wall, they will often cause gastric scirrhus compared with a solid tumor.

Fig. 27. Difference in tissue distortion between a solid tumor and scirrhus



The difference in fundamental cause between a solid tumor and scirrhus can theoretically be considered to originate in the size of initial distortion. Whereas a solid tumor results from initial distortion that occurs in the partial area of the stomach wall, scirrhus results from initial distortion that occurs equally in the whole area of the stomach wall. That is, the difference in the size of initial distortion divides signet ring cell adenocarcinoma between a solid tumor and scirrhus.

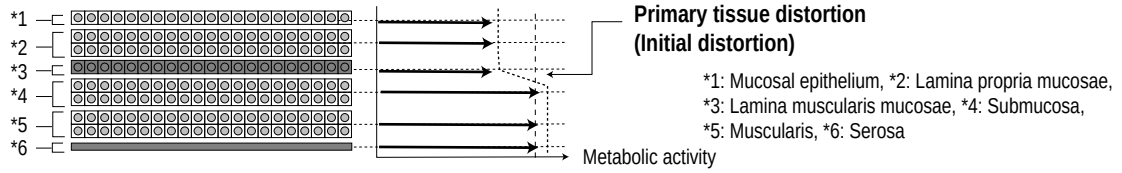
III-c. Theoretical Analysis of Leiomyosarcoma Arising from The Lamina Muscularis Mucosae

Lastly, let us also analyze theoretically how the stomach causes leiomyosarcoma in the lamina muscularis mucosae. This process can be divided into three steps. At the first step, the stomach causes primary tissue distortion in between the lamina muscularis mucosae and the submucosa. This primary tissue distortion indicates initial distortion. At the next step, the stomach stepwise amplifies the initial distortion by decreasing the momentum, and causes secondary distortion. At the last step, in order to neutralize the secondary distortion, the stomach causes third distortion in the lamina muscularis mucosae. Just this third distortion has the ability to cause leiomyosarcoma in the lamina muscularis mucosae. In short, leiomyosarcoma occurs almost by the same mechanism as other two carcinogeneses already explained in the previous two sections.

(1) Outbreak of Tissue Distortion (Outbreak of Initial Distortion)

In the stomach wall, when only the surface *three* layers, which are the mucosal epithelium, the lamina propria mucosae and the lamina muscularis mucosae, simultaneously reduce their metabolic activity, they cause primary tissue distortion that has the potential of causing leiomyosarcoma in the lamina muscularis mucosae. The stomach is created as a duct, the wall of which consists of several layers. Of these layers, when only the surface three layers strongly decrease their metabolic activity compared with other layers, they cause the imbalance in metabolic activity with other layers. This imbalance in metabolic activity works as primary tissue distortion: initial distortion. This initial distortion can theoretically be considered to have the potential of causing leiomyosarcoma that arises from the lamina muscularis mucosae in the stomach wall.

Fig. 28. Tissue distortion having the potential to cause leiomyosarcoma in the lamina muscularis mucosae



In the stomach wall, when only the surface three layers, which are the mucosal epithelium, the lamina propria mucosae and the lamina muscularis mucosae, strongly reduce their metabolic activity compared with other layers, they cause the imbalance in metabolic activity with other layers. This imbalance in metabolic activity works as primary tissue distortion, and which has the potential of causing leiomyosarcoma arising from the lamina muscularis mucosae.

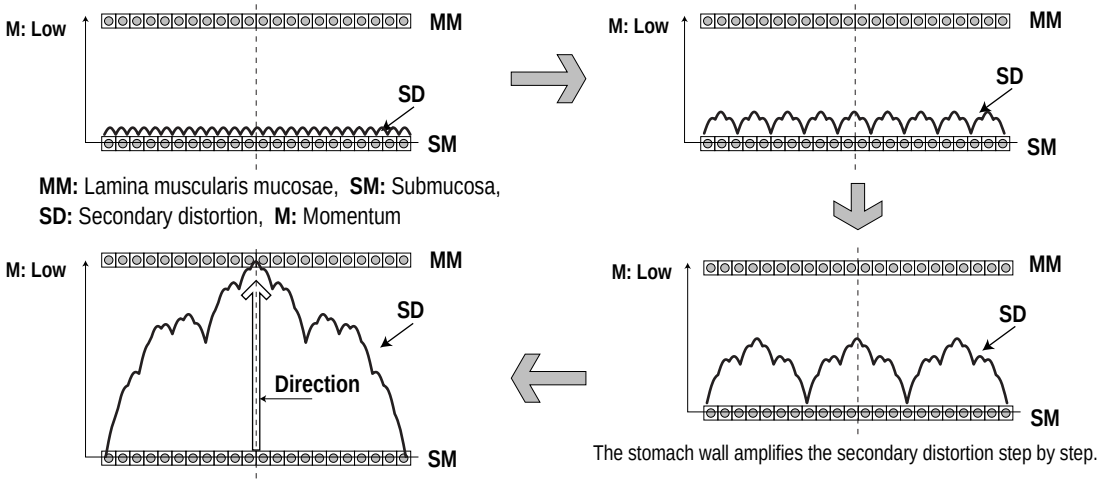
(2) Amplification of Tissue Distortion (Outbreak of Secondary Distortion)

When the stomach with initial distortion decreases the momentum, it starts amplifying the initial distortion stepwise. The stomach changes the momentum by using the fractal movement, so that it changes the momentum step by step. Furthermore, an organ with initial distortion amplifies the initial distortion by changing the momentum. Thus, when the stomach already causing initial distortion also decreases the momentum, it starts amplifying the initial distortion *step by step*. This amplified initial distortion indicates secondary distortion. The figures on the next page show the stepwise change in amplifying tissue distortion.

Importantly, this secondary distortion is in the direction from the submucosa to the lamina muscularis mucosae, and its peak is in the lamina muscularis mucosae. The surface three layers have decreased their metabolic activity, and tend to easily decrease their momenta. In contrast, other layers maintain their normal metabolic activity, and tend to decrease their momenta in parallel to the momentum contained in the stomach wall. Thus, when this stomach wall decreases the momentum, the surface three layers decrease their momenta strongly although other layers

decrease their momenta slightly. By this mechanism, this secondary distortion enlarges in the direction from the submucosa to the lamina muscularis mucosae, and its peak is in the lamina muscularis mucosae.

Fig. 29. Amplification of Tissue distortion (Amplification of Secondary distortion)



MM: Lamina muscularis mucosae, **SM:** Submucosa,
SD: Secondary distortion, **M:** Momentum

The stomach wall amplifies the secondary distortion step by step.

The figures above teach us the following three points. First, this stomach wall amplifies the tissue distortion stepwise. Second, this amplified tissue distortion, which means secondary distortion, is in the direction from the submucosa to the lamina muscularis mucosae. Third, the peak of this amplified tissue distortion is in the lamina muscularis mucosae.

Notes: Secondary distortion illustrated above indicates the two-dimensional image, which will certainly allow you to easily recognize the amplification of tissue distortion. However, the true figure of this secondary distortion, which occurs in between the lamina muscularis mucosae and the submucosa, is just like the theoretical models (density-plotting models) illustrated in the figures bottom on 10 page. That is, any secondary distortion, which occurs in between layers, **does not** make a space between them.

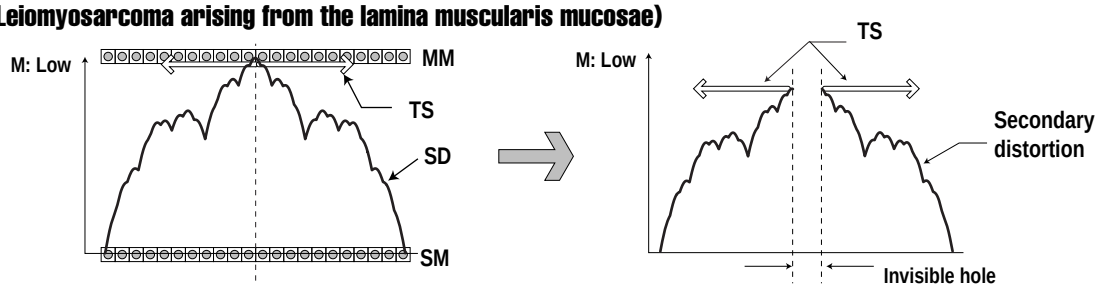
(3) Outbreak of Third Distortion

(Outbreak of Leiomyosarcoma Arising from the Lamina Muscularis Mucosae)

When the stomach wall cannot bear the tensile strength of the secondary distortion, it causes leiomyosarcoma in the lamina muscularis mucosae. This stomach wall has caused secondary distortion that is in the direction from the submucosa to the lamina muscularis mucosae; in addition, the peak of this secondary distortion is in the lamina muscularis mucosae. Thus, when the stomach wall cannot bear the tensile strength of this secondary distortion, it disconnects the connection in energy flow between cells in the lamina muscularis mucosae; simultaneously, it causes an invisible hole there. In this hole, the stomach wall also causes third distortion in order to neutralize the secondary distortion. This third distortion transforms cells in the lamina muscularis mucosae into new cells each containing a large amount of momentum. The new cells indicate leiomyosarcoma cells.

Notice that also in this case, the depth of third distortion divides a tumor between a benign and a malignant one. When the stomach wall causes shallow third distortion, it causes leiomyoma which indicates a benign tumor. In contrast, when the stomach wall causes deep third distortion, it causes leiomyosarcoma which indicates a malignant tumor. That is, this mechanism is just in common to other carcinogeneses.

Fig. 30. Outbreak of third distortion (Step-1)
(Leiomyosarcoma arising from the lamina muscularis mucosae)



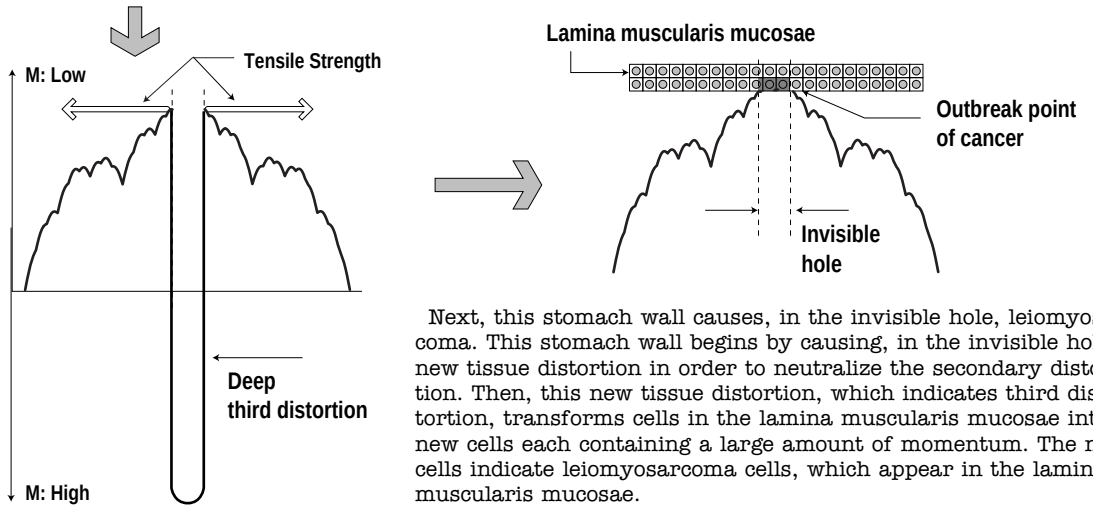
MM: Lamina muscularis mucosae, **SM:** Submucosa,
SD: Secondary distortion, **M:** Momentum
TS: Tensile strength

When this stomach wall cannot bear the tensile strength of the secondary distortion, it causes an invisible hole in the lamina muscularis mucosae.

This process continues to the next page.

Fig. 31. Outbreak of third distortion (Step-2)
(Leiomyosarcoma arising from the lamina muscularis mucosae)

This process continues from the preceding page.



Next, this stomach wall causes, in the invisible hole, leiomyosarcoma. This stomach wall begins by causing, in the invisible hole, new tissue distortion in order to neutralize the secondary distortion. Then, this new tissue distortion, which indicates third distortion, transforms cells in the lamina muscularis mucosae into new cells each containing a large amount of momentum. The new cells indicate leiomyosarcoma cells, which appear in the lamina muscularis mucosae.

The stomach rarely causes leiomyosarcoma compared with adenocarcinoma and signet ring cell adenocarcinoma. Why? Because of the anatomy of the stomach wall, whereas the stomach hardly causes initial distortion having the potential of causing leiomyosarcoma, it easily causes initial distortion having the potential of causing adenocarcinoma and signet ring cell adenocarcinoma. By this mechanism, although the stomach rarely causes leiomyosarcoma, it often causes adenocarcinoma and signet ring cell adenocarcinoma.

IV. Conclusion

Theoretical analyses of gastric cancers lead us to conclude that a tissue causes cancer through three steps. At the first step, a tissue causes initial distortion. At the next step, the tissue stepwise amplifies the initial distortion by changing the momentum. This amplified initial distortion is secondary distortion. At the last step, the tissue cannot bear the tensile strength of the secondary distortion, followed by disconnecting the connection in energy flow between cells. Then the tissue causes an invisible hole, where it causes third distortion which has the ability to cause a tumor. This tumor is controlled by the depth of the third distortion, and divided between a benign and a malignant tumor. Shallow third distortion causes a benign tumor; deep third distortion causes a malignant tumor. Importantly, in this process, third distortion has a force controlling the transformation of a normal gene into an oncogene.

This carcinogenic process, of course, can be applied to any carcinogeneses caused in a human body. Organs in a human body can roughly be classified into two kinds: hollow and solid organs. Of these two kinds of organs, hollow organs must cause cancer through the same process as the stomach causes cancer. On the other hand, although solid organs cause initial distortions that are different from that at gastric cancer, they can theoretically be considered to cause cancer also through the three steps: outbreak of initial distortion, of secondary distortion, and of third distortion. That is, these three types of tissue distortions always play a major role in causing tumorigenesis.

Fig 32. Three steps of carcinogensis

1st step: Initiation	2nd step: Promotion	3rd step: Outbreak of a tumor
Initial distortion →	Secondary distortion (Amplified initial distortion) →	**Shallow** third distortion → Benign tumor **Deep** third distortion → Malignant tumor

V. Discussion

Theoretical analyses of gastric cancers lead us to point out seven important indications about carcinogenesis. First, in a human body, not the microscopic but the macroscopic mechanisms play an important role in causing cancer. Second, carcinogenesis in vivo differs in carcinogenic mechanism from that in vitro. Third, although the majority of medical researchers focus on examining the relationship between immunity and carcinogenesis, theoretical analyses of gastric cancers lead us to suggest that immunity aggressively permits an organ in a certain con-

dition to cause cancer. Fourth, medical doctors, who treat a person suffering from gastric scirrhus, need to notice the existence of posterior force and to make a therapy of cutting it out. Fifth, helicobacter pylori can be considered to play a role in causing strong primary tissue distortion in the stomach wall. Sixth, the most important problem, which prevents us from finding out the fundamental cause of cancer, is in our mind. Seventh, modern medical science should establish a new field, theoretical medicine, in order to make a great progress.

(1) Microscopic and Macroscopic Mechanisms

Although the majority of medical researchers pay attention only to microscopic mechanisms in a human body such as chemical reactions, genetic functions and so on, they should notice that macroscopic mechanisms in a human body play a major role in causing cancer. In a human body, the microscopic mechanisms maintain the symmetrical relationship with the macroscopic mechanisms, and not only control but also are controlled by the macroscopic mechanisms. That is, a human body maintains the life both by using the microscopic and the macroscopic mechanisms. Thus, whenever medical researchers check any obscure mechanisms about disease including cancer, they should take notice of the relationship between microscopic and macroscopic mechanisms in a human body. Undoubtedly, paying attention to this relationship will allow medical researchers to notice new points of views toward disease, as well as help them find out the fundamental causes of diseases including cancer.

Additionally, modern medical science has divided a human body into many parts in order to analyze accurately the obscure mechanisms. Just this division forces medical researchers and doctors to narrow their view points, and to pay attention only to microscopic mechanisms. A human body, as explained before, is a relative system consisting of organs, each of which always balances itself with other organs. This balance works as the stability of a human body, and which allows a human body to maintain the life. These indications reveal that even when an organ appears to change its circumstance for itself, its fundamental cause always originates in the relationship between the organ and the other organs: the background organs. Thus, whenever medical researches try to check any obscure mechanism in a human body, they need to pay attention not only to the mechanism itself but also to the relationship between the microscopic and the macroscopic mechanisms in a human body.

(2) Difference in Carcinogenesis between Vivo and Vitro

Carcinogenesis in vivo (tissular carcinogenesis) quite differs in carcinogenic mechanism from that in vitro (cellular carcinogenesis). Usually when medical researchers examine carcinogenesis, they often check it by using cultured cells. Certainly, this procedure enables medical researchers to find out various accurate mechanisms about carcinogenesis. However, even if they check carcinogenesis by using cultured cells, they will be unable to find out how a tissue causes cancer. Why? This is because tissular carcinogenesis quite differs in outbreak mechanism from cellular one. That is, even when medical researchers try to check tissular carcinogenesis only by using cultured cells, they will be unable to find out the fundamental mechanisms. Thus, whenever medical researchers examine carcinogenesis, they should take notice of the difference in carcinogenesis between vivo and vitro.

(3) Immunity and Carcinogenesis

Although the majority of medical researchers tend to think that immunity always plays a role in preventing a human body from causing diseases including cancer, they should also recheck this thought. When a human body loses good balance among the organs, it will often aggressively destroy its own cells to regain the good balance. In this process, a human body must, *by using the immunity*, destroy its own cells. Certainly, although a phenomenon: "immunity destroys cells" appears to be an abnormal one, it can theoretically be considered one of the normal phenomena seen in a human body. Likewise, although carcinogenesis appears to be one of the abnormal phenomena caused in a human body, it can also be considered one of the normal phenomena seen in a human body. That is, there is a strong possibility that immunity aggressively permits a tissue in a certain condition to cause carcinogenesis. Undoubtedly, unless medical researchers can understand such a special characteristic of immunity, they will be unable to control cancer completely even by using immune therapy.

(4) The Reason Why We Cannot Easily Control Gastric Scirrhus

Next, consider why medical doctors cannot easily control gastric scirrhus. Even when a medical doctor succeeded in extirpating the stomach with scirrhus, he will often see the recurrent and hardly treat it. Why? The major reason for this must be hidden in the following point: "Most medical doctors do not notice the existence of the posterior force which is transmitted from background organs of the stomach to the stomach, and do not yet have a method of cutting the posterior force. As a result, they will often see the recurrence of the cancer." For instance, an epidemiological result about gastric scirrhus has pointed out that women whose ages are about thirty years old often cause this type of gastric cancer. Women at about thirty years old can be considered to have usually caused moderate initial distortion in the whole area in the stomach wall, and in addition often cause congestion in their sexual organs. This suggests that gastric scirrhus occurring in women at about thirty years old is often controlled by the posterior force that is transmitted from the sexual organs to the stomach. (Of course, besides this type of posterior force, there must be other types of posterior forces that can oppress the stomach.) All in all, medical re-

searchers should, as soon as possible, find out the posterior force oppressing the stomach, and in addition establish a method of cutting it out.

(5) H.Pylori and Gastric Cancer

The stomach wall infected with helicobacter pylori can theoretically be considered to cause strong initial distortion in between the mucosal epithelium and the lamina propria mucosae. Medical science has pointed out as follows. "When the stomach is infected with helicobacter pylori, its mucosal epithelium is strongly damaged by them. By this mechanism, the stomach tends to begin by causing atrophic gastritis, followed by causing intestinal metaplastic gastritis. Then the stomach often causes gastric cancer." This process reveals that the stomach infected with helicobacter pylori frequently causes strong initial distortion in between the mucosal epithelium and the lamina propria mucosae. Thus, when the stomach already infected with helicobacter pylori also decreases the momentum, it will amplify the strong initial distortion and then easily cause adenocarcinoma. For the reasons, helicobacter pylori can theoretically be considered to play a major role in causing strong initial distortion in the stomach wall.

(6) Our Thought about Cancer

Although modern medical science has made various treatments on the basis of a philosophy: "Diseases including cancer are our enemy," it should have a new philosophy to establish new treatments for cancer. Certainly, cancer often leads us to die; in this sense, cancer appears to be our enemy. However, theoretical analyses of gastric cancers have already taught us clearly that cancer is not our enemy in a sense, and in addition that we need to understand the necessary condition of cancer. As if we each have the reason for the existence, cancer must also have the reason for the existence. In fact, we will be unable to control cancer completely unless we notice the fact: "Our mind, which regards cancer as our enemy, prevents us from finding out the fundamental cause of cancer."

(7) Necessity of Theoretical Medicine

Modern medical science must need a new field: "Theoretical Medicine" in order to make a great progress. Most medical researchers appear to determine hardly where they focus on researching in order to find out the fundamental cause of disease. Why? This must be because modern medical science does not yet have a field of theoretical medicine, and cannot teach medical researchers where important points about disease are. Although the majority of medical researchers do not yet notice the importance of theoretical medicine, they should consider what role theoretical medicine can play in medical science. Theoretical medicine plays a role in a map of disease, and will teach medical researchers where they had better focus on researching. In this sense, theoretical medicine must bring great benefits to medical researchers. Thus, all the scientists, who are not only medical researches but also basic scientists such as mathematicians, theoretical physicists, theoretical biologists and so on, should cooperate with one another in establishing a new field of medical science: "Theoretical Medicine."

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