

## For those who challenge to study medicine

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### Introduction

Let me introduce myself before starting the lecture. I was born in the rural place of Niigata prefecture in 1955 where my parents had been brewing soy source for many years as a traditional business. I had been putting my energy for Kendo (traditional Japanese fencing) in my elementary, junior high and high school days and put aside all other things such as studying. After having spent two years at cram school, I entered Jichi Medical University where I had been taught to devote myself to the community medicine to be subsidized for the 6-year tuition. Up until then I had nothing to do with the ethical mission to be a doctor. I reverted my focus on continuing medical science study as a lifetime mission so that I could devote myself to the medicine on account of my father's death right before my graduation.

The lecture will give 1<sup>st</sup> grade students of high schools in Yamagata Prefecture who want to enter medical universities the essence of medical sciences.

### Why the crow is black in color?

#### The WHITE crow emerged!



We have encountered the White crow in Niigata prefecture. As a messenger from God, it has been living for 20 years and eats dog food as daily meals. Shiunji Bird Center (Sazuri no sato).

(Picked up from the Internet)

Do you know why the color of crow is black? It is not scientific fact but derives from a myth. Any of you know Aesculapius?

**Aesculapius** was the son of **Apollon** and **Koronis**. Apollon made the white feather crow as a messenger with Koronis. Here comes the white crow. It is actually a myth. Interestingly it speaks human language and Apollon with the brilliant image as a Sun God used it as a stakeout for his wife with jealousy. Some day the white feather crow condemned the affair of Koronis to Apollon. He killed her by an arrow with anger. There were two different background stories about this crow; it lied to Apollon because it wasted time on the way or it took Koronis affair mistakenly due to its carelessness. Either way, Apollon took away the human language literacy from it and changed the color of the feather from white to black. That's the reason why the crow has come to have black feather. After this incident the color of crow has become black for the first time. It is an interesting and contradictory story that 'White' crow turned out to be 'Black' one because of lies and the crow was asked to say 'Yes or No' though it was not good at mimic like hill myna. It seems a cruel myth that even God killed others from jealousy but the story about the origin of medical science derives from here.

## **The rod of Aesculapius**

Koronis told Apollon that she was pregnant before the death, Apollon saved the unborn baby and asked the **Sage Cheiron** in shape of **Centaurus** to take care of him. He was Aesculapius.

Aesculapius grown at Cheiron's place had shown his talent in medical science which exceeded even Cheiron's. His state of medical technique reached to the degree to reincarnate of the dead by using the blood of **Medousa** whose hair consists of snakes. Anyone of you has ever watched the movie of a woman with the hair of snakes and when someone watches her eyes, the person becomes stone? She is Medousa. In medical terminology there is an expression 'Medousa head' which represents one of the hepatic cirrhosis pathology that emerges around navel with swollen vein resembling serpentine shape. In the myth it is said that Aesculapius brought the dead to life by the usage of Medousa brood.

If we contemplate it from the modern medical science viewpoint, it is diagnosed that the patient who has lost consciousness due to the massive bleeding comes back to consciousness by way of blood transfusion. Anyway, the mishap of Aesculapius originated from the fact that he took this epoch-making treatment.

The king of underworld, **Hippolytus** appears in the Greek Mythology. She strongly protested against **Zeus** that bringing dead back to life disrupted 'Universal order of death(death of elderly or disease)'. Zeus accepted the complaint and killed Aesculapius by a thunder. As Apollon whose son was killed by unreasonable reasons, could not criticize Zeus directly, his anger reached to the extent

that he killed all the one-eyed **Cyclops**, one of the Giant races who made thunders for Zeus. Zeus punished Apollon and asked him to take care of live stocks as a shepherd. Why so many cruel Gods were there showing up in the Greek myth? Zeus who killed Aesculapius by thunder and Apollon who demolished all the unicorns due to the outburst of anger from the reason that he could not express what he thought in mind. These stories are the basis of "The rod of Aesculapius", the symbol of medical science and therapy.

### **What does the rod mean?**

Aesculapius's technique to reincarnate the dead derives from the usage of Medousa whose hair consists of **snakes**. In the ancient Greece the snakes were the symbol of eternal animal. It means that medical treatment itself was the way to bring back life to the patients in danger of death. In order to control the snake, it should be coiled by the **rod** to prevent the snake from moving freely. It exactly leads us to the medical **ethics** and **guidelines** for treatments in the present days. It means that it is important for doctors to master medical techniques but is further important to upgrade their humanity to control by themselves the extent of ethical criterion how they make use of medical knowledge. The rod coiled by a snake is used as a symbol of medical science and treatment as "The rod of Aesculapius".

## **Symbol of Medicine**



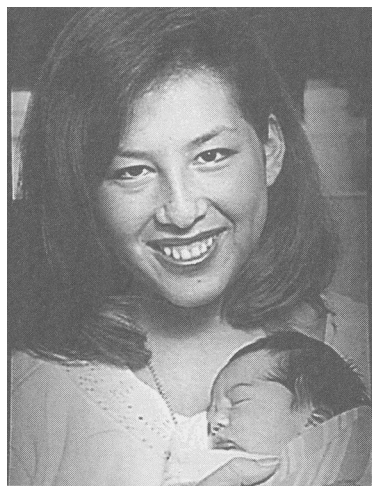
In the ancient Greece, the hospital was called "Aesculapia". Aesculapius's children were all involved in medical sciences; his sons were good at medical knowledge who became famous for their endeavors at Trojan War; **Machaon** and **Podairius**, his daughters Hygieia in charge of hygiene, Panakeia in charge of healing. **Hygieia** has become a symbol of Pharmacy.

## Medical science is not almighty

You might have wishes to be doctor and I by myself am proud of being a doctor. The profession of doctor is wonderful not only for its financial and honorable advantages but for the facts that there exist doctors making efforts to establish community medicine in isolated districts, treating patients with Ebola hemorrhagic fever in under-developing countries and devoting themselves to the researches for the suffering patients from incurable diseases. But also I'd like all of you to realize that medical science is not almighty.

For a long time, I have been involved in the live donor liver transplantation for children who suffered from malfunction of liver. Their fathers or mothers' left part of liver is given to the children for transplantation and they regain health back to normal. "Thank you very much, doctor" is the utmost pleasure and honor to me as a doctor. But gradually things to reconsider arise. It is the case that fathers or mothers' liver gets worse to the extent that they need transplantation. As adults need bigger liver, in turn, part of children's liver has to be given back. It is known that liver is a regenerative organ but it does not always regenerate to the original condition. The below are the two attractive women's stories which clearly show us that medical science is not almighty.

## The progress of medical science and confusion



(Picked up from the Internet)

This left side photograph shows Ms. **Anissa Araya**, Hispanic American. Currently her profession is a bone marrow transplant coordinator. The following is the common example of worries in line with the development of live donor transplant technology.

Spring in 1988 she got leukemia when she was 2<sup>nd</sup> grade of the high school. No one in her relatives has matched the type of her bone marrow. There was a match at the bone marrow donor registry, however, she was rejected. Then her parents made a decision to give a birth to a baby for using its bone marrow for Anissa. And they prayed for 25% of the match adaptability among brothers and sisters from the same mother. The challenge was made between the father **Abe** 45 years old and the mother **Mary** 42 years old, luckily Mary got pregnant. The family was fortunate because the bone marrow tissue of the unborn baby was found to be adaptable by the amniotic diagnosis of Mary at her 9-month pregnancy. April 2<sup>nd</sup> in 1990 she gave a birth to a baby girl named **Marissa**. And when she completed 1-year birthday, the bone marrow transplant from Marissa to Anissa was done in a success. Anissa's leukemia was completely cured.

On the other hand, there was a strong criticism such as "Is it justified to give a birth to a baby with the purpose of saving another child?" (*Chicago Tribune*) "Is it legal to have a baby to get a sort of spare organ?" (*Los Angeles Times*). Nowadays, assisted reproductive technique has been further implemented and there have been lots of brothers and sisters born thanks to the technology (It is called "Designer Baby"). The transplant methodology without relying on donors; human being might be a challenge for us researchers towards an ultimate human love.

This right side photograph shows Ms. **Angelina Jolie**, with a nickname "Angie" born on June 4<sup>th</sup>, 1975 under the registered name Angelina Jolie Voight in the USA. Her profession is actress, movie producer and fashion model also act as Goodwill Ambassador for UNHCR. She is famous for a wife of actor Brad Pitt as well.

She has been with the deleterious mutation in the BRCA1 and diagnosed that it would be highly probable that she gets breast and ovarian cancer. Breast cancer was the same disease which robbed lives of her mother and aunt. She has decreased the onset probability of breast cancer from 87% to 5% by the prophylactic mastectomy. However, one oncologist insists as follows; "If the fact that you face in danger of cancer doesn't bring excess in uneasiness, it is fair to consider that periodical diagnosis of every 6 months is more beneficial. Even you are diagnosed as cancer, the therapeutic possibility stays as high as 98%. On the other hand, the prophylactic mastectomy surely decreases the risk of cancer but the probability never gets down to zero."

We have various choices for the therapy thanks to the medical science progresses. In a sense, it is not rational to give patients with no medical knowledge such important choices. All of you with the attempt to be doctors need to be determined to share the worries of patients together.

## The painting describing the necessity of going back to “The origin of medical science”

By the way, I'd like to bring up the myth in order to let all of you reconfirm of your wishes to be doctors. The meaning of being a doctor implicates to have such thoughts in mind.



(Picked up from the Internet)

This painting was drawn by **Jordanens** in 1640 (Wallraf-Richartz Museum, Cologne). The vultures living in the mountain of Caucasus came one after another during the day to eat the internal organ of **Prometheus** on the right side where the liver was located. It leads to the implicative theory that the liver was known as a regenerative organ. Sometimes I refer to the above painting when I talk about my specialty in liver regeneration. On the other hand, this Prometheus is the God who loved human being as an animal called “The God of humanism”. The painting implies the following anecdote.

**Prometheus** taught the usage of fire to human and it led to the furious anger of **Zeus**, he was condemned to be hung with iron chain to the rock of **Caucasus** Mountain for thousands of years and his abdomen torn off and internal organs picked by vultures. When **Prometheus** looked down to the human world from the Gods’ place, human being was in the middle of ignorance and darkness. Then, he went to all mighty god **Zeus** and consulted with him. However, Zeus implicated “Ignorance means they know nothing about sin. Human being is happy forever unless otherwise they notice somebody else is unhappy” and had no ears to listen to Prometheus. Zeus also added “If human being got to know how to use fire, as same as Gods ourselves, they would try to be strong and invade Olympus someday”. Prometheus was not satisfied with Zeus in regard to his response and he was said to have stolen the fire of the dawn in the following morning and handed it over to human being.

Human has become happy with such an enormous sacrifice? For sure, they got a torch to lighten the ways in the dark night out of the caves. And they became able to eat cooked foods. But on the other hand, they brought it in the smithy and forged plow, sword and spear. Then they put helmets to the wars.

## **You are the ones who save Prometheus!**

Thanks to the scientific progress, medical science can provide new treatments for the patients suffering from diseases. Nevertheless, doctors face with same kind of worries that Prometheus had faced toward the therapies they operated.

Most of you when the time of entrance exams comes, you will choose among the medical universities the ones which you look into "Spirit of foundation" and "Admission Policy" and decide which one would be a best fit. You can find in most of medical universities the key phrases such as "Humanism", "Lifelong learning" and so on. Doctors engaged in medical treatment continuously need to keep humanism in mind while having mercy to the patients suffering from diseases. Imagine what you would be in your future. Entering medical schools, qualifying for national certified doctor and devoting yourself to providing safe and secured medical treatments through various experiences as a doctor. Also you put your passion in the community medicine and appreciated by lots of patients involved and become financially free. That's the way of life full of humanism. Why Prometheus had to receive punishment despite the fact that humanism was the most wonderful behavior? Do you know who freed Prometheus from the agony? The above painting of Prometheus has a continuing story.

In the mythology the brave hero **Hercules** killed vultures and released Prometheus from pain. He is the strongest and biggest hero among the heroes in the Greek myth in shape of half God and half human. Zeus is the father of Hercules, surprisingly he is the son between Zeus and a woman with whom Zeus made her a mistress by having stolen her from another man. The wife of Zeus, Hera put two snakes in the cradle of Hercules behind his back but he was said to be brave enough to kill the snakes by hand even in his infantile period.



The statue of Hercules and two snakes located at the museum of Capitolini in Rome, Italy

(Picked up from the Internet)

There are several interesting episodes of Hercules I want to convey but as time is pressed, let's keep them for another occasion. A couple of background stories exist why Hercules released Prometheus from the pain. One of the prominent reasons is that based on the advices from Prometheus, Hercules was said to have made unparalleled achievements happen.

I have been mastering the treatment methods for the patients in danger of death while being involved in organ transplantation. It is a profession that gives me utmost satisfaction and value of living as a doctor. However, we need to face contradictorily the reality that "Donor as a human being" is indispensable for organ transplant. The donors of living tissue transplant are exactly as same as Prometheus for philanthropy. It might be us who persist in researching "Fabricating transplantable organs" to save Prometheus. "Lifelong learning" is to continue having research mindset for the development of new techniques without ending up with the medical techniques already acquired.

As a closing remark, I strongly feel confident that all of your efforts will be rewarded. The efforts to pass the exams for medical schools should not be dedicated to your parents. Make best of it for yourself.

## Special Thanks

I thank Mr. Hiroshi Kita for having translated my speech into English meaningfully in a professional manner. I also thank Mrs. Chie Takahashi for the draft edition.