The veterinarian's profession is to get involved in the lives of animals

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The basics of medical and veterinary sciences

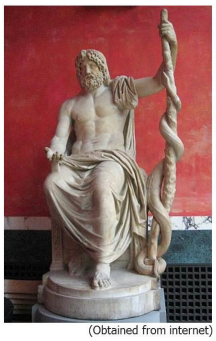
Students like you who aim at veterinarians will be entitled to have various choices after being qualified for a veterinary doctor such as inaugurating hospital as a clinician to take care of companion animals, leading livestock industry for cows and pigs, working for pharmaceutical or medical device manufacturers or being a teacher at veterinary colleges. Regardless the type of social contributions you will engage, ñI like animalsò always stays in your mind in general.

Iôd introduce to you with the ambition to master veterinary science as your lifetime study, a story of a boy who likes animals would tell us as follows. His name is Franken Weenie and the ragged dog in front of him is Sparky. This is the poster for the 3-D fantasy horror movie road shown in 2012 (Figure 1).

(Obtained from internet)

Sparky (Bull Terrier dog) owned and loved by **Victor,** an only son of **Franken** family died in the traffic accident. Victor came across the idea of reincarnate Sparky because he got an idea at scientific experiment class in school. The comically-ragged Sparky led Victorôs classmates to do the same experiments for other animals one after another and caused a panic in the whole town. The movie itself was not the original. The original movie was produced by **Tim Burton** (American) working for **Disney** as an animator and road shown in 1984. This original movie was introduced to Japan in 1994. In the original movie the resurrection experiment was undertaken with a frog by electric shock. It resembles to the Italian scientist **Luigi Galvani**ôs (1737~1798) experiment with a frogôs spine and leg connected with two different metals and succeeded in making the legs react. His name remains as Galvani battery. In addition, the original of **Frankenstein** was back in 1818 by the British author Mary Shelly (1797~1851). The story has acquired enormous popularity as a horror with the ragged monster powered by the lightning.

The Victor story which reincarnated the dead animals derives from the episode of **Aesculapius**, the symbol of Medicine (Figure 2).



(Obtained from internet)

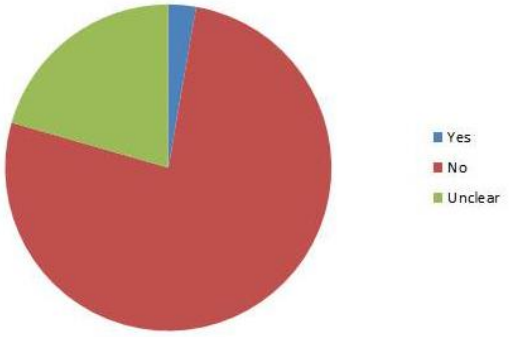
Aesculapiusô secret technique to reincarnate the dead derives from the usage of **Medousa** whose hair consists of snakes. In the ancient Greece the snakes were the symbol of eternal animal. It means that medical treatment itself was the way to bring back life to the patients in danger of death. In order 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.

Before all, Iôd like to share with you that these stories about medical, pharmaceutical and veterinary sciences are closely related to the ñLifeò. The sciences for which we are pursuing in a sense like ñAesculapius Rodò show the benchmarks how we make full use of these techniques.

Questions to all the students present

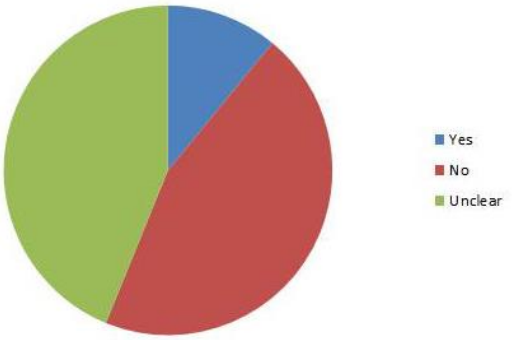
I ask you five questions concerning the usage of animals for the purpose of medical experiments. Please choose among these three responses : Positive (○), Negative (×) and Neutral (Unclear at the moment) (△). After counting your responses, I show you related incidents respectively.

Question 1: Use of captured homeless dogs for animal experiments



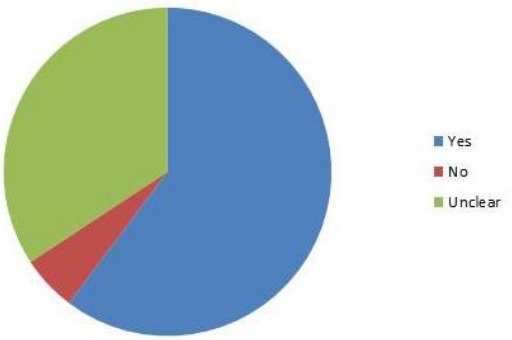
There took place a very famous incident in the medical industry ñMurayama Hospitalò. It was broadcast on TV shows with the title ñPity on dogs!ò focusing on the animal welfare group who sneaked into a national hospital laboratory and released experimental dogs from the cages. They videotaped the interrogation with the orthopedist in charge.

Question 2: Use of monkeys born in excess at zoo for animal experiments



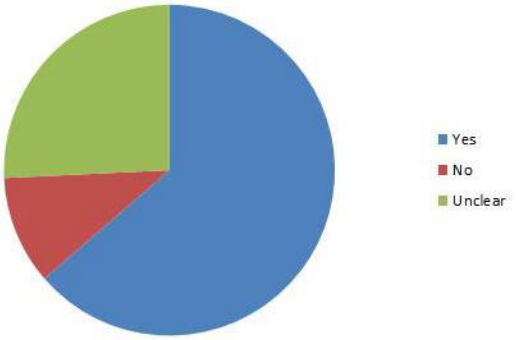
There was another famous incident which was ironically exposed the immature understanding toward experimental animals. At the **Inuyama** zoo in Aichi prefecture, as they kept Japan monkeys under merely natural environment, the number of monkeys increased far beyond control by the breeding staff of the zoo. In 1998 Nature magazine picked up the topic on global scale that the zoo sold 160 monkeys in excess for 75,000 yen per monkey as experimental animal.

Question 3: Convert experimental cats to companion animal



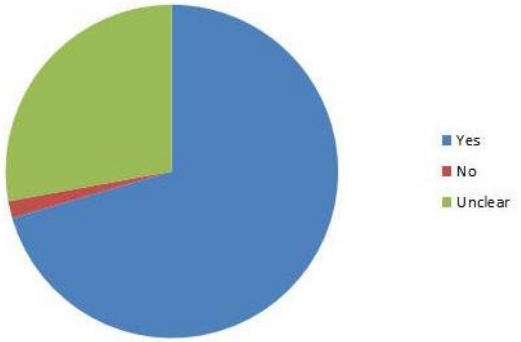
The use of experimental cat as a donor to save companion cat clinically diagnosed as kidney failure occurs in the course of treatments. The donor cat with one healthy kidney is kept as a pet after the operation together with the cat as a recipient. In the US over 20 years, more than 100 cases annually have been reported. In response to the requests from independent veterinary hospitals I have had an experience to deal with the issue seriously at civic symposium in order to acquire the public acceptance.

Question 4: Convert livestock. pig to experimental one



I personally did it 10 years ago. As livestock baby pigs tend to have hepatitis E virus and are not suitable for rearing for longer period of time, I have been changing them to Mini pigs for experimental purpose only despite higher in price. However, if we narrow the purpose of research to a certain extent, livestock pigs are also good for experiments because their production cost is ideally controlled.

Question 5: Kill experimental animals for veterinary clinical medicine

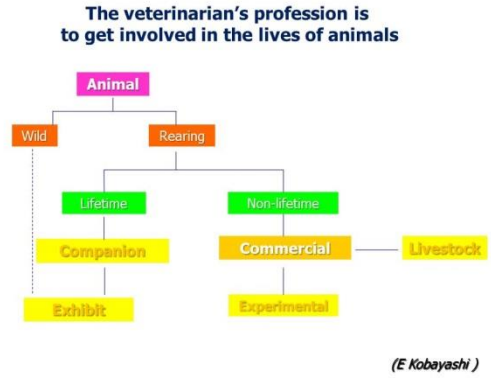


It has been very difficult for us take it into serious consideration. I have reported the protocol of clinical training for kidney transplantation of cats by using blood vessels of rats. We need to have further discussion whether we can justify the fact that we can kill animals to save another animal.

What I have been putting my energy so far

Let me get back to the cartoon again. Do you know ñKimba the White Lion" produced by Osamu Tezuka? As he was also qualified for a medical doctor, he created lots of stories dealing with "Life" which embrace us with aspiring dreams because they implicate far beyond common cartoons. The difference between wild animals and rearing ones and the rights of animals are stated in "Kimba the White Lion" (Figure 3).

It might be a repetition but I dare say that "Medical doctors are engaged in human life" and "Veterinarians are engaged in animal life", it's YOU. It is extremely instructional that the animals are generally divided into two kinds; wild animals and rearing ones with which we have spent time and money to breed (Figure 4).

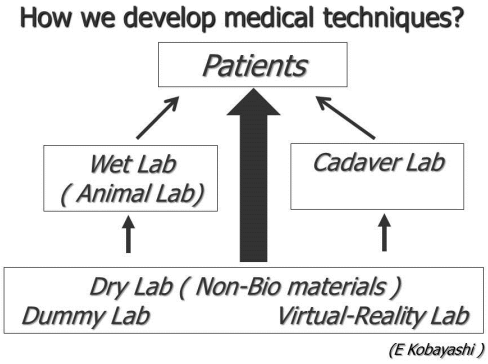


The rearing animal is a self-centered categorization by humankind. Companion animals (pets) and rearing animals bred in zoo are the ones with which we have lifetime breeding obligations. On the other hand, livestock and experimental animals are categorized as animals for commercial use with which we can terminate their lives in the

middle of their life span. Therefore, captured homeless dogs and monkeys born in excess at zoo are the cases that we cannot categorize in the above.

How about using live animals for medical trainings?

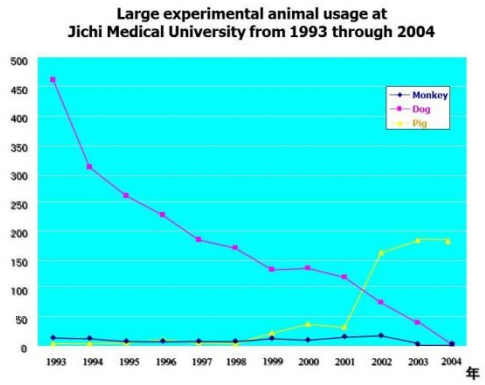
Everyone is against the idea of executing first-time operation or treatment directly to patients. All of you are against the idea of operating cats and dogs without technical training. I think that the ideal method to medical to provide medical technology training for human treatment as per attached (Figure 5).



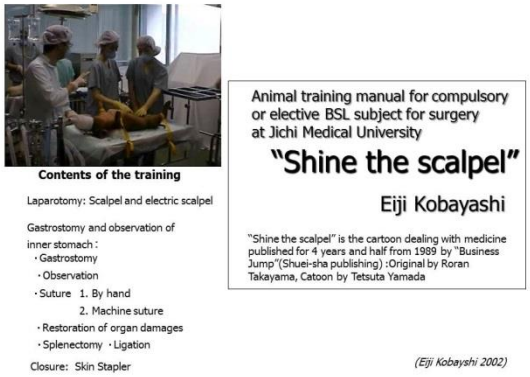
There are three ways to train them: Simulation method by using dummies, Cadaver training and Use of pigs as live animals. The ideal method is to skip cadaver and live animals and focus on simulations. Nevertheless, it is clear that the simulation method has limitations.

How I have been approaching

Based on the above concept I started using pig instead of transferred dogs from public health center for studentsô surgery training at Jichi Medical University where I was a professor as my former duty (Figure 6).



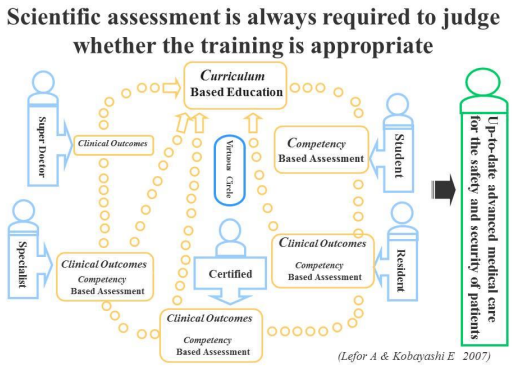
The training course was titled ñShine the scalpelò for 5th grade students of gastroenterological surgery which last 3 weeks (Figure 7).



The session consists of gastrostomy, observation of inner stomach and suture of a pig under general anesthesia by a team of 4~5 students. In the development stage of the training program I let students experience both hand and machine sutures to understand the advantages and pitfalls of each method.

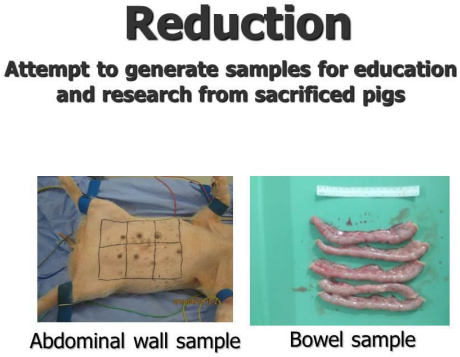
The training includes not only surgical techniques but postoperative pain and infusion management which are basics for surgical operations for human. In a week after the surgery, we remove the operated organs under sufficient anesthesia, observe the suture point and experience even a cardiopulmonary resuscitation training. The program has been implemented each year for better performance.

I strongly believe that this kind of training program should contain ñ3(three) Csò (Figure 8).



The first ñCò is creating a Curriculum as shown above. The second ñCò is Competency toward students (doctors) who have received the curriculum. The third ñCò is Clinical outcome which we observe how the surgical technique has been utilized for the treatment of patients. Through the repetition of this ñ3Csò circle, our goal to have a complete training program which is solely beneficial for patients and embrace animals for their sacrifices. If nothing is improved, we immediately should stop training programs using live animals.

Also we have implemented further training programs for Ex-vivo by removing educational materials from the sacrificed pigs (Figure 9).



Closing remarks

What Iôd express here in my lecture is that all of you engaged in animals should have pride and awareness as professionals. French historically honorable surgeon **Rene Leriche** referred to the point in his book entitled ñLa Philosophie de la Chirurgeiò (written in 1951) as follows: ñHumanism is the one and only driving force to keep the direction of surgery straight. Humanism is the doctrine to show us, surgeons the limit of rights and he extent of obligations.ò Please apply his thoughts to veterinarians: ñThe feeling of love toward animals is the one and only driving force to keep the direction of veterinary science straight. Zoophilism is the doctrine to

show you, veterinarians the animal-related limit of rights and the extent of obligations.ò I expect everybody present today to observe the veterinary doctrine.

Acknoledment

This is the compilation in English for the special lecture given to 4th grade students of Azabu Veterinary College on October 22, 2014 (Figure 10).

I extend my gratitude to my laboratory manager Mr. Kita for his translation skills and my secretary Ms. Takahashi for her editorial knowledge.