



Davis-Thompson
Foundation



Workshop on Pathology and Basic Mechanisms of Disease

Facultad de Medicina Veterinaria y Zootecnia

Universidad de San Carlos de Guatemala

August 7-9, 2023

Executive Summary

Over the course of three days, 24 third year students and 12 faculty members from the College of Veterinary Medicine gathered together to participate in group interactive and practical sessions on pathology. The entire workshop was conducted in Spanish. Sessions included: Disturbances of Circulation; Cell Injury; Inflammation; Disturbances of Growth; Avian Diseases; Ruminant Diseases. In addition, the student participants practiced doing a necropsy on a chicken with collection and packaging of tissues. All instruction was provided using adult learning theory. Evaluations were positive (see page 7).



Learning Objectives:

At the end of the workshop, participants will be able to:

1. Create morphologic diagnoses for accurate communication
2. Identify specific mechanisms of disease through gross lesions, and form a list of differential diagnoses
3. Perform a necropsy on a bird, collecting and packaging tissues in an appropriate manner for use in the laboratory

Monday, August 7

Opening

Dr. Rodolfo Chang, Dean of the Faculty, opened the workshop. Then, Dr. Francisco Carvallo spoke on behalf of Davis-Thompson Foundation and the Global Health Pathology Network.

Introductions:

Each participant introduced themselves with the following data: “nombre; de donde; que hace (ahora o en el futuro); un data divertido o curioso”.

The group nominated and accepted class officers – Class Leader; Timekeeper; Welfare Officer. We called on these three officers throughout the day to help the course run smoothly.

Learning Objectives:

We asked participants to read these and emphasized how we need to achieve the objectives or the training team will have failed!

Adult Learning Principles – Corrie reviewed these for the class – this is what we will follow in this workshop. We created a list: material must have relevance to participants; group/social learning is especially effective for adults; full trust between learner and presenter is paramount; problem solving helps to solidify core concepts; frequent breaks with activities to allow transfer to long-term memory.

Description and creating a morphologic diagnosis – Francisco Carvallo

In an interactive session, Dr. Carvallo described the various words in making a description. This was followed by how to make a morphologic diagnosis. He used the S-T-D-P-O format. Then, as we went through cases for the rest of the day, we asked participants to create morphologic diagnoses on the lesions seen.

Disturbances of Circulation

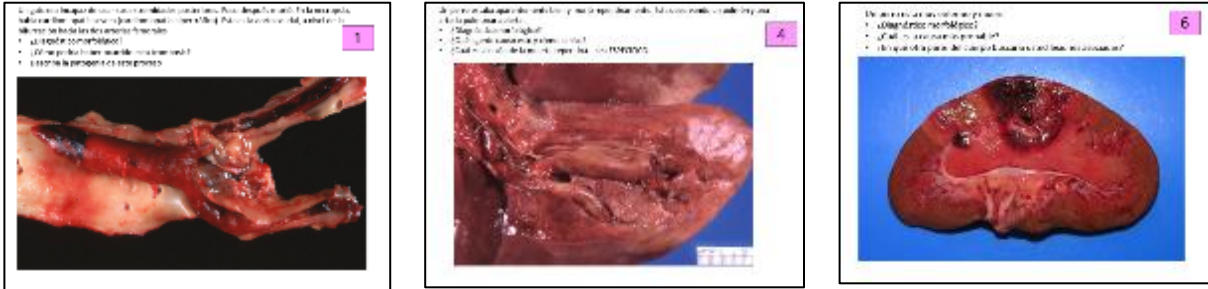
Each table had to make a diagram of blood flow through the body. Then one table presented. This was followed by asking tables to create definitions of: hemorrhage, hyperemia, congestion, thrombosis, infarct, embolus.

Scenarios – Hemorrhage and congestion



Scenarios – Edema – Francisco presented a graphic showing the four major causes of edema, then participants did the scenarios, with group review at the end.

Scenarios – Thrombosis and Embolism – Dr. Carvalho reviewed Virchow’s triad and we also discussed infarct. Then participants did the scenarios, with group review at the end.



Necrosis – Dr. Asin asked tables to define necrosis and then to list all causes. Following that participants worked through scenarios, with group review at the end.



End of Day – Corrie asked all participants to sit silently for 30 seconds and think of a word to describe today – then we went around the room and asked various participants – “interactive”, “participatory”, “illuminating”, “instructive”, “fun”.

Tuesday, August 8

Review of yesterday

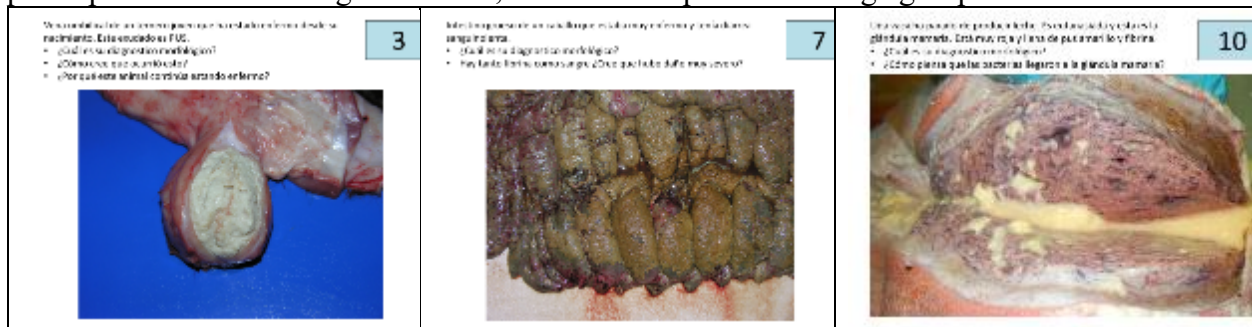
Each pair or trio of students was given an assignment to review for the group:

- ✓ Define petechia; what are the two most common reasons?
- ✓ What is the difference between hyperemia and congestion?
- ✓ Name the various types of emboli
- ✓ What are the components of a morphologic diagnosis?
- ✓ Causes of necrosis?
- ✓ Shock is the ultimate reason for death. What are the three types?
- ✓ What are the three causes of thrombosis (Virchow’s triad)?

- ✓ Edema and congestion occur where in the body – with right heart failure? With left heart failure?
- ✓ What is the difference between fibrin and fibrosis? And, significance of each?
- ✓ What is the mechanism of hypoproteinemic edema? Possible causes?

Dr. Asin called on each group to give the answers, as a review.

Inflammation – Drs Asin and Brown reviewed the various types of exudate seen in inflammation and what each type indicates – in terms of etiology and prognosis. Then, participants worked through scenarios, and Dr. Asin provided a large group review at the end.



Disturbances of Growth – Dr. Carvalho described terminology as it is used for tumor diagnosis. He also explained why the differentiation into the various categories is important (for prognosis and treatment). Participants worked through 4 full case scenarios, and then Dr. Carvalho did a wrap-up at the end. Scenarios included: SCC in a cow, LSA in a cow, leiomyoma in a dog, hemangiosarcoma in a dog.

Necropsy of chickens and packaging of samples

Corrie reviewed the 6 steps to a necropsy. Then students worked on the 4 chickens provided for necropsy, and this was overseen totally by the faculty who work in avian diagnostics, following the “Guia de Necropsia” previously prepared. After the necropsy, groups exchanged packages of samples and report to assess what was done well and what could be improved.



At the end of the afternoon, we asked participants to assess achievement of learning objectives so far, thumbs up or thumbs down. All three were thumbs up.

Wednesday, August 9

Review of yesterday

Every table was asked to write definition of the six types of exudates and their significance, and Six Steps to a Necropsy. We called on volunteers to do the review, there was good retention of learning from yesterday.

Avian disease scenarios

Four diseases (these diseases were requested previously by our partners) – Gumboro, infectious bronchitis, Newcastle, HPAI. After everyone had completed the scenarios, Corrie reviewed pathogenesis of each.

Ruminant and Small Animal Scenarios (these diseases were requested previously by our partners) – canine parvovirus, canine distemper, enterotoxemia, bovine TB, rabies.

Exercise in public speaking

The afternoon session consisted of a “talk show”, featuring Deborah Rodriguez and Monica Solórzano (two faculty members) as “the desmechadas show” (desmechadas means big hair). They hosted groups of veterinary experts, i.e, student groups, to discuss key issues in veterinary medicine/global animal health. We had 5’ of interviewing, and then 10’ of Q&A with the “studio audience”. Participants had 20’ to quickly formulate key messages on the following topics, one topic per group, and then we began the show:

1. Explain the role of veterinarians in food security
2. How will climate change affect animal agriculture in Guatemala?
3. What is the future of aquaculture in Guatemala?
4. An outbreak (hypothetical) of HPAI has occurred in Guatemala, what does the public need to know?

At the end, we asked each group to discuss what was most challenging and what they learned from the exercise:

- ✓ Don’t be too technical
- ✓ Public speaking is important and we need to learn more about how to do it
- ✓ It is important to be clear, direct, and simple
- ✓ Prepare well and then trust your knowledge
- ✓ Take these opportunities to practice and don’t be afraid
- ✓ Understand your audience and prepare well
- ✓ Be careful not to inform in a wrong way



Evaluations were distributed and completed (see results at end of report).

Closing ceremony

- Dr. Francisco Carvalho relayed his gratitude to the group for their enthusiasm and diligence throughout the week.
- Dr. Monica Solarson presented certificates of participation to all student and faculty participants. She also presented certificates of appreciation to the GHPN team.
- The Course Leader, Marcia, spoke on behalf of the class, thanking everyone for working together and relaying gratitude to the facilitators for working so hard to enhance learning.
- Corrie closed the Ceremony by stating that she now has many new friends and two new sisters in Guatemala.



Appendix 1 – Evaluations – 35 responses received

Each score based on Likert scale (1, strongly disagree, to 5, strongly agree)

INSTRUCTION	
Learning objectives were accomplished	5.0
Necropsy exercise was valuable	5.0
Interactive group exercises were valuable	5.0

If this course were changed, what is ONE thing you would NOT like to see changed?

- Very dynamic and interactive, a new way of learning that was very effective (X19)
- Group discussions of case scenarios (X12)
- Involvement of everyone in the class, and facilitators' attention to every participant, built our confidence (X10)
- Integration of learning in each case – putting the lesions together into a whole story
- Nothing was boring
- Nice change from just presenting powerpoints

If this course is given again, what is one thing you WOULD change?

- Everything was excellent, thank you! (X6)
- Give more information about some of the scenarios, to help us along (X4)
- Maybe give us some written materials at the beginning (X4)
- More species to necropsy (not just chickens) (X4)
- We want more workshops like this, please return to Guatemala (X4)
- Days were a bit long
- More about clinical signs and treatment in the scenarios
- Would have liked some social activities for the groups
- Some field visits
- More cases next time!
- Use some powerpoints
- Sometimes it was hard to hear from the back of the room