ESAVS
European School for
Advanced Veterinary Studies

# Case Report Instructions
# EMSAVM / MASVM Surgery

## General instructions

- Case reports, written in prose, must be in a problem-oriented approach and include a complete presentation of the case, illustrations where necessary, literature review on the subject with references and a discussion. Candidates must demonstrate a comprehensive understanding of the topic.
- A case report should contain 2000 words +/- 10%, excluding tables, references and appendix.
- The 10 cases must be a mixture of various species, problems and diagnosis, all pertaining to the selected master's program. Candidates are required to keep a table of the already submitted cases which shall be send with each new case report submission. The ESAVS Office will provide an Excel template for the table below:

| Case Nr. | Species | Problem/s | Diagnosis |
|---|---|---|---|
| | | | |

- Candidates are advised to submit cases shortly after beginning and throughout the program and not all cases at the end of the program.
- ESAVS cannot guarantee the evaluation of more than 3 case reports per semester. To ensure an evaluation in a specific semester, reports should be submitted no later than the given deadline for the respective semester (please see Important Dates on the ESAVS website).

Cases should be set out under the following headings:

- Title
- Signalement
- Case History
- Physical Examination
- Differential diagnosis and final diagnosis
- Medical and surgical treatments
- Post-operative care
- Results and control
- Discussion of case in relation to current literature (no repetition of literature but a discussion why the case fits or does not fit what is known)
- References
- Pictures, including explanation (if necessary)

Each case report is viewed by one member of the Examination Board and graded on a 0-20 scale (<10= fail, 10-11.9 = sufficient, 12-13.9 = fair, 14-15.9 = good, 16-17.9 = very good, 18-20 = excellent).

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# Evaluation of a case report

## Step 1: Is the case report acceptable?

Is the case described in the report suitable at all?

Reasons to reject a case are:

- A case is too simple (e.g. an uncomplicated humerus fracture)
- Lack of an adequate number of state of the art clinical tests to arrive at a diagnosis (or at least a presumptive diagnosis). The case could be resubmitted when the lacking information can be retrieved.
- Inadequate surgical technique
- The animal's life was endangered by excessive/unnecessary diagnostic tests or treatments (including surgery). Such a case cannot be resubmitted.
- A case that falls not within the specified master program
- Most diagnostic tests and interpretation are done by a referring veterinarian
- Inadequate follow-up of a case (e.g. diagnosis reached after euthanasia with no follow-up available)
- Multiple cases all with the same problems or diagnosis
- Cases not seen during the enrollment in the program of the master student or where the master student is not the primary responsible clinician

**If a case is rejected the case report is assigned 0 points. The reason will be stated in the evaluation.**

## Step 2: Grading of the accepted case report

**The case report will be evaluated based on a check sheet**

An accepted case can reach a maximum of 20 points. A minimum of 10 points is required to pass.

The table below contains a list of 11 potential inadequacies. For each one the examiner can allocate a number of points. At the end a total of points are given.

Recommendations for the candidate to avoid deduction of points:

- Make sure the history is sufficient
- Give all details of the physical exam (report on how you evaluated the lameness, etc.)
- Reported tests need to be relevant for the animal: XRays, Ultra-sound, CT.
- Explain how you came to the diagnosis
- Be precise in the description of the surgical treatment
- Discuss the case – do not just repeat text book knowledge! Bring relevant literature to justify your treatment
- Be sure your treatment was appropriate and discuss the alternative options
- Be precise about results and complications

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# Case Report Evaluation Check Sheet / Surgery

## Grading Criteria:

For students who have enrolled in a Master of Advanced Studies in Veterinary Medicine (MASVM) or European Master of Small Animal Veterinary Medicine (EMSAVM) program **before the winter semester 2024-2025**, the following grading criteria apply:

- The grades of the individual case reports are averaged to obtain one single grade. When this average grade is **below 10**, candidates are requested to resubmit revised versions of the failed case reports or new cases.
- A case report may not be acceptable and may be rejected if critical concerns in one (or several) areas result in a fail, regardless of whether all other required criteria are adequately met.

For students who have enrolled in a Master of Advanced Studies in Veterinary Medicine (MASVM) program for the first time **from the winter semester 2024-2025 onwards**, the following **new** grading criteria apply:

- 1. Pass = 10 points and more
- 2. Fail (case report insufficient) = below 10 points
  - modifications required - resubmission possible
  - case report insufficient - 0 points resubmission of this case report not possible - a new case report needs to be submitted
- **IMPORTANT:** the **average grade** for the module must be **13 points or higher** and none of the case reports must be graded below 10 points.
- A case report may not be acceptable and may be rejected if critical concerns in one (or several) areas result in a fail, regardless of whether all other required criteria are adequately met.

***The maximum grade of a case report is 20 points. The second column indicates the maximum number of points that can be reached.***
***In the third column the examiner indicates the number of achieved points, half points may also be allocated.***

| | Maximum points | Allocated points |
|---|---|---|
| Complete signalment, history and physical examination<br>*Comments:* | 1 | |
| Adequate list of differentials<br>*Comments:* | 1 | |
| Adequate choice of tests and assessment<br>*Comments:* | 2 | |
| High quality of representation of diagnostic tests (radiographs, endoscopy)<br>*Comments:* | 2 | |
| Correct and justified diagnosis<br>*Comments:* | 2 | |
| Adequate or appropriate medical management<br>*Comments:* | 1 | |
| Adequate surgical treatment<br>*Comments:* | 4 | |
| Adequate follow-up for the case report to be meaningful<br>*Comments:* | 2 | |
| Appropriate discussion, adequately referenced<br>*Comments:* | 2 | |
| Language and word count adequate<br>*Comments:* | 2 | |
| Special features not covered above<br>*Comments:* | 1 | |
| **TOTAL POINTS/ GRADE** | 20 | |

There is no “perfect” case and thus the subsequent example of a case should be viewed more as how to present your case. If you have questions, please ask them during one of the courses early on – the course masters are ready and willing to help.

**CASE REPORT**

Candidate name:
Programme: Master Programme
Surgery Case Report Number: 4
Date of submission:
xx/xx/xxxx
Word count: 2185

**Title:** A case of an heart-base tumor in a dog treated with an open subtotal pericardiectomy.

**Signalment**:
Dog, Beagle, intact male,10 years old.

**Case History:**
A Beagle, male, 10 years of age came to the emergency care unit for dyspnea, weakness and exercise intolerance since 3 days.

**Physical examination:**
At physical examination the dog had systemic hypotension, muffle heard sounds, weak femoral pulses. Pulmonary auscultation was normal. The dog had pale-pink mucous membranes with refill capillary time of 1 second. Abdominal palpation revealed a positive fluid thrill test. Temperature was normal, 38.6°C.

**Differential diagnosis and diagnosis:**
Radiographs of the thorax were performed. (Fig.1) The heart had a globoid shape and pleural effusion was present. On fast-ultrasound examination pericardial fluid was identified. The fluid was removed completely by pericardiocentesis. After removal of the fluid and stabilization of the patient, an echocardiography was performed: presence of left ventricular hypertrophy without valvular anomalies was detected. A clear cardiac mass was not found on ultrasound. Cytochemistry of the fluid revealed a protein-poor transudative effusion: the effusion had a transparent color, specific weight of 1006, total protein 0 gr/dL, wbc 0,2x10*9. Culture of the fluid was negative.
At the abdominal ultrasound abundant peritoneal fluid was present without other abdominal organs' anomalies. Abdominal fluid was still a protein-poor transudate. CBC and profile revealed moderate increase of creatine phosphokinase (CPK) and hepatic enzymes.
The day after the dog was sent to a diagnostic centre to perform a computed tomography scan (CT). At CT a nodule of 2 cm of diameter cranial to the right atrium was highlighted. (Fig.2) No other nodules or possible metastasis were present in thorax or abdomen. No other causes of transudative effusions were found.
A heart-base tumor was diagnosed.

**Surgical treatment:**
A subtotal open pericardiectomy was performed to collect a biopsy of the mass to give a prognosis and to avoid repeated pericardiocentesis because of the chronic

formation of pericardial fluid.
The patient was positioned in a left lateral recumbency and the lateral thorax was clipped and prepped from dorsal to ventral midline. The leg was secured in an extended position. A right 4th intercostal space thoracotomy was performed. Skin, subcutaneous tissues were incised. The latissimus dorsi and pectoralis muscles were incised. The intercostal muscles

were dissected midway between the ribs and the thoracotomy was completed puncturing the pleura. A retractor was used to expose thoracic structures.
The pericardium was incised ventral to the phrenic nerves using a T-shape incision, the heart was elevated to continue the incision at the base of the heart on the apposite side. (Video 1)
The subphrenic pericardiectomy was completed and the pericardium was excised. The mass was visualized and a biopsy was collected.
A thoracostomy tube was placed through a skin incision made caudal and dorsal to the thoracotomy site and tunneled cranioventrally. The tube was then forced through the 6th intercostal space.
Four encircling polydioxanone 0 sutures were placed around ribs cranial and caudal to the thoracotomy site. Sutures were tied. Bellies of the serratus ventralis muscle and pectoral muscle were reapposed in a continuous suture layer. Latissimus dorsi muscle was sutured. Subcutis and skin were closed routinely. Post-op xrays were performed. (Fig.3 A)

**Results and control:**

The patient was hospitalized for three days after surgery. The third day the thoracostomy tube was removed and the dog was discharged with oral administration of amoxicillin/ clavulanic acid at 20mg/kg every 12 hours and robenacoxib at 1mg/kg once a day. The dog came at the 10th day post-op for a clinical control. Body temperature was normal, heart rate and sounds were normal, good femoral pulse, normal pulmonary sounds, pink mucous membranes with 2 seconds refill capillary time. Owners reported a return of a normal vitality and appetite. Control thoracic xrays were performed. (Fig.3 B-C) Histopathology (Fig.4) and immunohistochemistry of the mass revealed an ectopic thyroid carcinoma which was address with oral tyrosine kinase inhibitors.
Two months after surgery the dog came to a clinical control with blood exams and thoracic xrays which were unremarkable.

**Discussion:**

A transudative pericardial effusion may occur with congestive heart failure, peritoneopericardial diaphragmatic hernia, hypoalbuminemia, or increased vascular permeability. This dog had three different cavitary effusions (pericardial, pleural and abdominal effusions) without significant ultrasonographic signs of cardiomyopathy. Chronic pericardial effusion commonly induces signs of right-sided congestive heart failure such as pleural effusion and abdominal distention from ascites, as in our case report. (1)
The acute treatment for patients with cardiac tamponade is pericardiocentesis. Fluid needs to be saved for cytology, biochemical analysis, and culture. Resolution of tamponade with fluid drainage should result in a decreased heart rate, decreased

central venous pressure, and improved arterial pulse quality. (2)
The classic echocardiographic finding in pericardial effusion is an anechoic space between the epicardium and pericardial sac. Echocardiography is considered to have high sensitivity (82%) and specificity (100%) for diagnosis of a cardiac mass in dogs with pericardial effusion. (3) When possible, echocardiography should be performed before pericardiocentesis as the presence of fluid provides contrast against solid masses and aids in better visualization. (3) In our case, pericardiocentesis was performed just before echocardiography to stabilize a very critical patient and this is probably the reason why the mass was not detected on ultrasound examination.
The term “heart-base mass” is a general term used to designate any mass located at the base of the heart in association with the ascending aorta and pulmonary trunk but without

right atrial involvement. (4) To distinguish between right atrial and heart-base masses is important because dogs with heart-base masses may benefit from partial pericardiectomy to improve survival time respect to those that receive medical treatment alone. (5, 6) Conservative medical management of pericardial effusion has the risk of sudden, life- threatening cardiac tamponade. (7)
Pericardiectomy can be palliative for neoplastic pericardial effusions and also provides tissue samples for histologic analysis.(8) Pericardiectomy decreases the surface area of pericardium reducing fluid production and increases the surface area for absorption by the pleural cavity. Pericardiectomy can be subtotal or complete. Complete pericardiectomy is performed through a median sternotomy. With a subtotal pericardiectomy, the pericardium is transected ventral to both phrenic nerves. Subtotal pericardiectomy is performed most commonly because complete pericardiectomy does not provide additional benefits. (1) Advantages of median sternotomy include visualization of the entire pericardial sac, heart, and thorax.
Advantages of a right thoracotomy include access to the right atrial appendage and decreased operating time. Disadvantages of median sternotomy include the need for specialized equipment such as an oscillating saw, as well as increased operating time. (9) Thoracoscopy in dogs is a viable alternative to standard open approaches to the thoracic cavity. Thoracoscopic partial pericardiectomy has several advantages over open partial pericardiectomy including decreased postoperative pain, fewer wound complications, and more rapid return to function. (10) Its major disadvantage is the expense of the video equipment and surgical instrumentation, and the steep learning curve for the operator to master new visual and tactile skills. (10)
The right fourth intercostal space for the thoracotomy was chosen on the base of the CT images to address both subtotal pericardiectomy and the collection of the biopsy of the mass. The intercostal space was intraoperatively identified counted the ribs after the incision of the latissimus dorsi muscle by inserting a finger deep to the muscle and sliding it cranially until the first rib was located.
The major disadvantage of right lateral thoracotomy is the inability to visualize the left side of the heart and thoracic cavity, including the left side of the pericardial sac and the left phrenic nerve, requiring some blind dissection of the pericardium ventral to the phrenic nerve on that side. (9)
Small heart-base tumors can be surgically excised, however given their slow growth and the inherent risks associated with surgery, as bleeding and vagal nerve

injury, there is little evidence that surgical removal is beneficial. (4)
Pleural effusion is the most common complication in dogs undergoing pericardiectomy and placement of a thoracostomy tube is recommended. (11)
Chemodectomas of the aortic body are the most common heart base masses in dogs, but ectopic thyroid and parathyroid masses can also develop at the heart base. (4)
Our biopsy sample gave a diagnosis of an ectopic thyroid carcinoma (Fig. 4) and immunohistochemistry revealed the presence of immunoreactive thyroglobulin in the cytoplasm of most neoplastic cells.
The evidence base for chemotherapy for canine thyroid carcinomas is limited and less is known about chemotherapy of ectopic thyroid carcinomas with many diagnosed postmortem. Toceranib phosphate, a tyrosine kinase inhibitor, has been shown to be successful in achieving a partial response in 26.7% of dogs with thyroid carcinoma and stable disease in 53.3%. (12) Just in one case report (13) toceranib phosphate is reported to be used as adjuvant chemotherapy for an ectopic thyroid carcinoma. Given the above evidence, it was used also in our case report.
The prognosis for some cardiac tumours, for example, haemangiosarcomas is poor and therefore there is not an incentive to definitely diagnose with surgical biopsy when they are clinically suspected. (14) Given the prognosis for heart base tumors is significantly better, when they are diagnosed as in our case report a surgical biopsy is often persued. In addition, pericardiectomy at the time of biopsy is associated with prolonged survival in dogs with aortic body tumors.
At the last clinical and radiographic control the dog had normal temperature, normal respiratory rate, good pulse, normal pulmonary sounds. Owners referred a good quality of life for their dog after two months from the surgery.

**Pictures:**

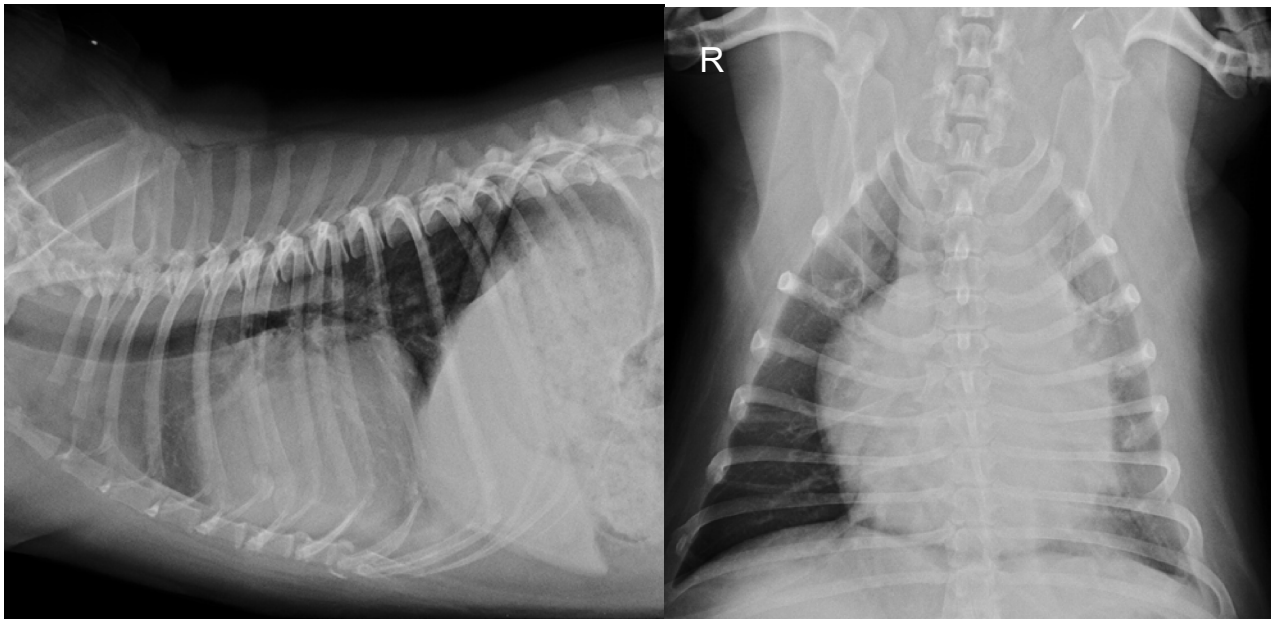


**Fig.1**
Lateral and ventrodorsal views of the thorax at presentation. The heart has a globoid shape, and details of the cardiac silhouette cannot be visualized. Some

pleural effusion is visible on the lateral view.

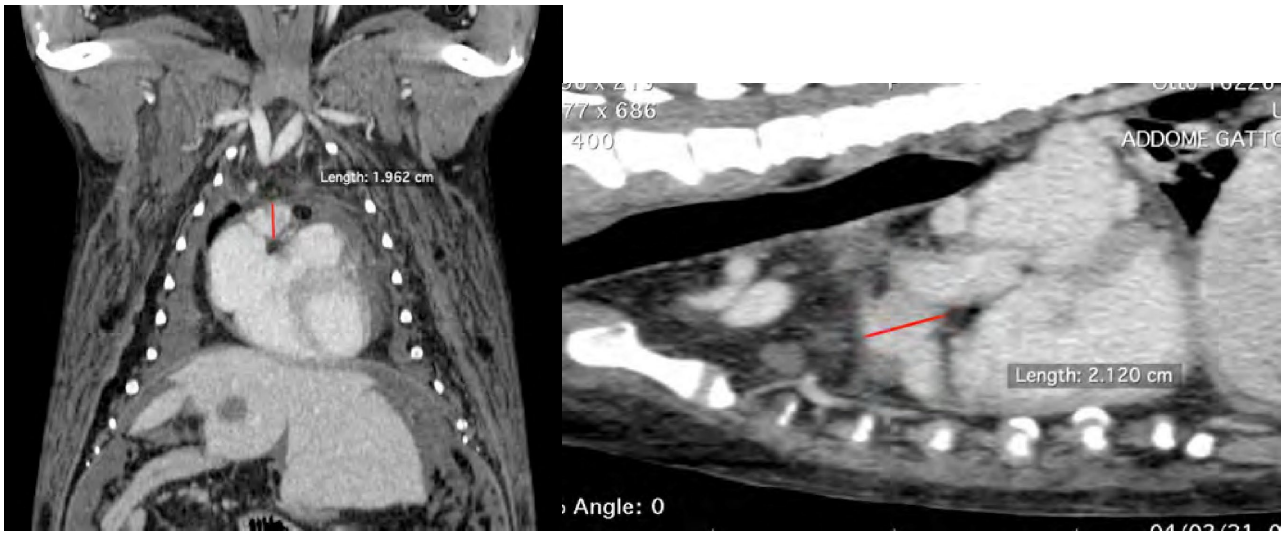


**Fig.2**
CT images showing the heart-base mass (red lines measuring the mass).

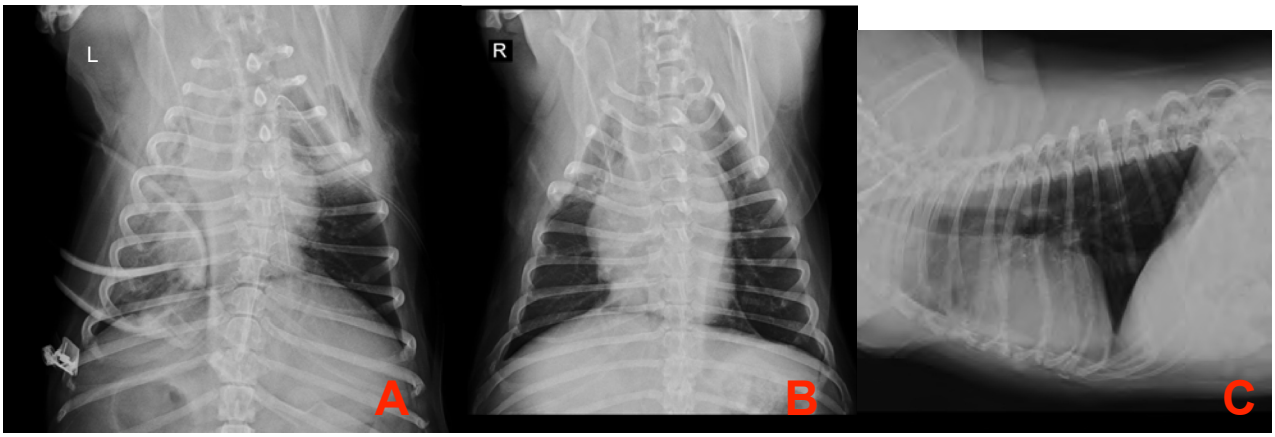


**Fig.3**
A: dorsoventral post-operative xray to check thoracostomy tube position and pneumothorax. B, C: ventrodorsal and lateral10days post-op xrays follow up.

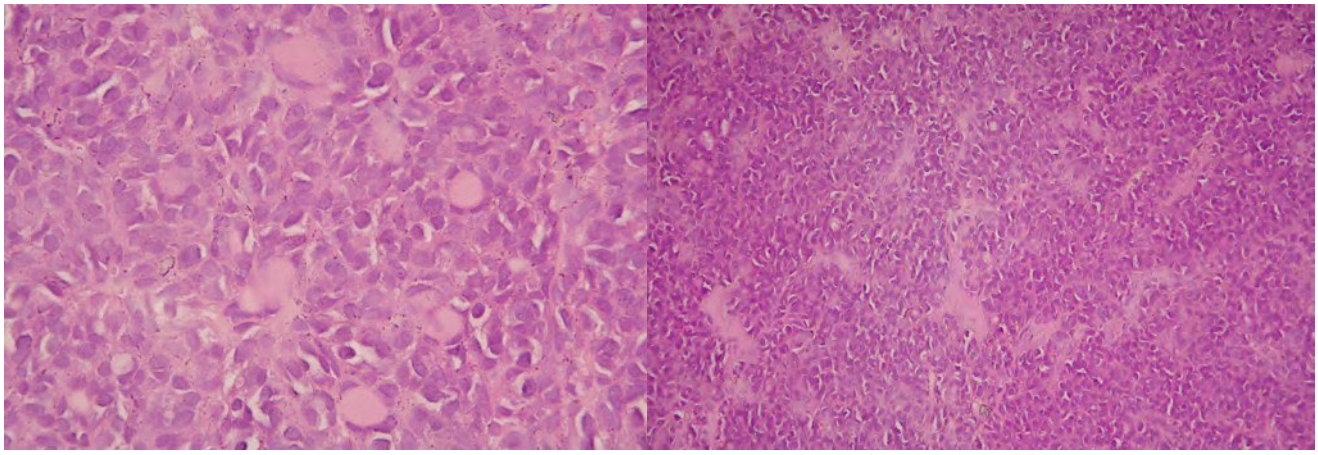

**Fig.4**
Histopathological pictures of the ectopic thyroid carcinoma of our case report: follicular pattern with lobules of epithelial cells. The tumor showed acini of polygonal cells, with a moderate amount of lightly eosinophilic and finely granular cytoplasm.

**Video 1 (see file attached)**
Incision of the pericardium ventral to the phrenic nerve and aspiration of the pericardial fluid. Identification of the heart base mass cranial to the right atrium.

**References:**

1. Monnet E. Pericardial surgery. In: Johnston S, Tobias K, editors. Veterinary Surgery, Small animal: Elsevier; 2017. p. 1845-53.
2. Ettinger SJ. Pericardiocentesis. Vet Clin North Am. 1974;4(2):403-12.
3. MacDonald KA, Cagney O, Magne ML. Echocardiographic and clinicopathologic characterization of pericardial effusion in dogs: 107 cases (1985-2006). Journal of the American Veterinary Medical Association. 2009;235(12):1456-61.
4. Orton E. Cardiac surgery. In: Johnston S, Tobias K, editors. Veterinary Surgery, Small animal: Elsevier; 2017. p. 1813-44.
5. Vicari ED, Brown DC, Holt DE, Brockman DJ. Survival times of and prognostic indicators for dogs with heart base masses: 25 cases (1986-1999). Journal of the American Veterinary Medical Association. 2001;219(4):485-7.
6. Ehrhart N, Ehrhart EJ, Willis J, Sisson D, Constable P, Greenfield C, et al. Analysis of factors affecting survival in dogs with aortic body tumors. Veterinary surgery : VS. 2002;31(1):44-8.
7. Kunishige H, Ishbashi Y, Kawasaki M, Yamakawa T. [Surgical treatment of iatrogenic cardiac injury induced by pericardiocentesis; report of a case]. Kyobu Geka. 2011;64(5):419-21.
8. Dunning D, Monnet E, Orton EC, Salman MD. Analysis of prognostic indicators for dogs with pericardial effusion: 46 cases (1985-1996). Journal of the American Veterinary Medical Association. 1998;212(8):1276-80.
9. Aronsohn MG, Carpenter JL. Surgical treatment of idiopathic pericardial effusion in the dog: 25 cases (1978-1993). Journal of the American Animal Hospital Association. 1999;35(6):521-5.

10. Walsh PJ, Remedios AM, Ferguson JF, Walker DD, Cantwell S, Duke T. Thoracoscopic versus open partial pericardectomy in dogs: comparison of postoperative pain and morbidity. Veterinary surgery : VS. 1999;28(6):472-9.
11. Kerstetter KK, Krahwinkel DJ, Jr., Millis DL, Hahn K. Pericardiectomy in dogs: 22 cases (1978-1994). Journal of the American Veterinary Medical Association. 1997;211(6):736-40.
12. London C, Mathie T, Stingle N, Clifford C, Haney S, Klein MK, et al. Preliminary evidence for biologic activity of toceranib phosphate (Palladia((R))) in solid tumours. Vet Comp Oncol. 2012;10(3):194-205.
13. Hamilton-Elliot J, Finotello R, Murgia D, Blundell R, Dukes-McEwan J. Ectopic medullary (C cell) thyroid carcinoma in a dog with pericardial effusion. Veterinary Record Case Reports. 2018(6).
14. Lunn K, Page R. Tumors of the endocrine system. In: Withrow S, Vail D, editors. Small animal clinical oncology. 5 ed. St Louis (MO): Saunders Elsevier; 2013. p. 504-31.