



HOW TO TREAT THYMOMA IN RABBITS: CLINICAL SIGNS, DIAGNOSIS AND MEDICAL/SURGICAL TREATMENT

José Rosas Navarro
CHV Anicura ADVETIA
New Companion Animals Service (NAC)
9 av. Louis Breguet 78140, Vélizy-Villacoublay
France

INTRODUCTION

Thymoma is an epithelial neoplasm that originates in the thymus, a gland located in the mediastinum cranioventral to the heart. In rabbits, unlike other species, the thymus does not undergo physiological involution after sexual maturity, remaining functional throughout life.

Histologically, these tumours are usually benign with low metastatic potential. However, their expansive growth and compression of vital structures make them a significant clinical challenge. Although thymic lymphomas or carcinomas can also occur, they are less common. Cases are most frequently seen in adult and geriatric rabbits, with a typical age range of 3 to 10 years.

CLINICAL SIGNS

The clinical course of thymoma is insidious, manifesting mainly through respiratory signs such as dyspnoea, tachypnoea and exercise intolerance. A distinctive sign in this species is bilateral exophthalmos (Fig. 1), intermittent or persistent, secondary to compression of the cranial vena cava and congestion of the retrobulbar venous plexus, often accompanied by prolapse of the nictitating membrane.

In some cases, the diagnosis is incidental, detected through imaging studies or necropsies of asymptomatic animals. Paraneoplastic syndromes such as exfoliative dermatitis and sebaceous adenitis have also been described.



Figure 1: Rabbit with thymoma presenting bilateral exophthalmos secondary to compression of the cranial vena cava and congestion of the retrobulbar venous plexus. (Credit JRN – CHV Anicura ADVETIA)

DIAGNOSIS

The diagnostic approach should include a complete blood count (usually with normal results, moderate to severe leukocytosis or anaemia), biochemical profile, chest and abdominal radiographs, and, if possible, cytology of the mass. The definitive diagnosis is obtained by histopathological analysis after surgery or necropsy. Transthoracic biopsy is not usually recommended due to the risk inherent in the mediastinal location.

Radiographically, thymoma appears as a mass in the cranial mediastinum, which may displace structures such as the trachea dorsally (Fig. 2). It is important to note that the thymus in adult rabbits may present physiological hyperplasia, simulating a tumour process.

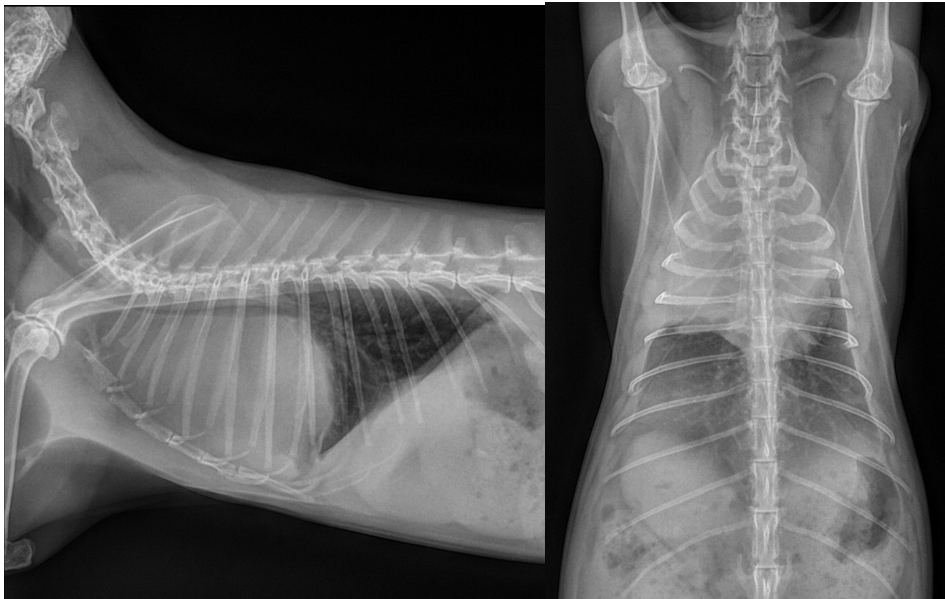


Figure 2: Right lateral and dorsoventral chest radiographs of a rabbit with a mediastinal mass (thymoma). Note the dorsal deviation of the dorsal trachea and the loss of the cardiac silhouette. (Credit JRN – CHV Anicura ADVETIA)

Contrast-enhanced computed tomography (CT) is the technique of choice for determining location, extent, and relationship to adjacent structures, which is crucial for planning surgery or radiotherapy (Figure 3).

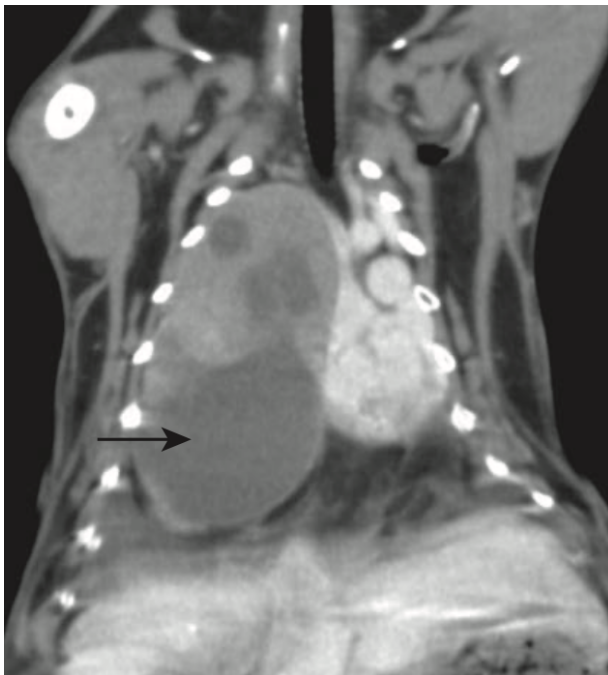


Figure 3: Contrast-enhanced computed tomography studies in a rabbit with thymoma, showing a cystic thymoma with a large fluid content (arrow) and displacement of the heart to the left. (Credit JRN – CHV Anicura ADVETIA)

Thoracic ultrasound can be useful for assessing whether the mass is solid or cystic, as well as for guiding aspirations in a palliative and even surgical context. (Figure 4).



Figure 4: Ultrasound of a rabbit with a cystic thymoma, from which 10 ml of fluid was drained. (Credit: JRN – CHV Anicura ADVETIA)

Cytologically, thymomas usually contain a mixture of mature lymphocytes and epithelial cells, while lymphomas show intermediate to large lymphoblasts. The limited exfoliation of epithelial cells may limit the usefulness of cytology, making histology necessary for a conclusive diagnosis.

From a histopathological point of view, thymomas are classified into three types: lymphocytic predominant, mixed lymphoepithelial, and epithelial predominant.

THERAPEUTIC OPTIONS

Treatment of thymoma should be considered in all cases. The option of not intervening leads to progression of the mass, aggravating clinical signs and compromising the patient's life, even if the tumour is histologically benign.

1. Surgery

Median sternotomy allows surgical resection of the thymoma and is the only potentially curative option (Figure 5). However, its technical complexity and high perioperative risk mean that it is only indicated in centres with experience in thoracic surgery on exotic animals. In one series of cases, five out of nine rabbits died within the first three days after surgery. In another series of 14 rabbits that underwent surgery, only seven survived for more than six months. However, there are multiple cases described in the literature in which patients who underwent surgery lived for more than 24 months after the procedure, a finding that the author has also been able to confirm in his own clinical experience, demonstrating that, when performed under optimal conditions, surgery can offer prolonged survival and a good quality of life. Complications include pneumothorax, hypoventilation, and postoperative pain, so strict monitoring is essential.

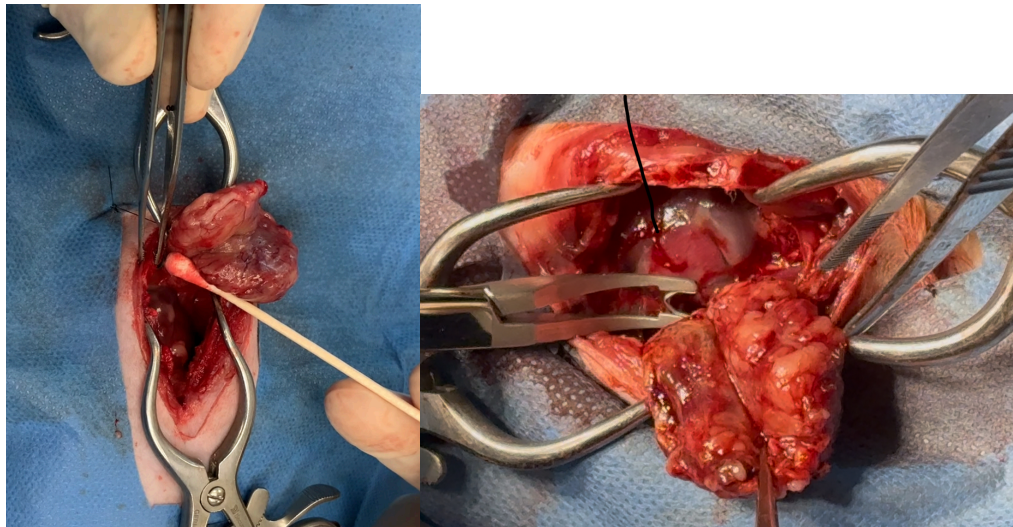


Figure 5: Image of a rabbit with thymoma that underwent a median sternotomy for removal of the mass. (Credit JRN – CHV Anicura ADVETIA)

2. Radiotherapy

Radiotherapy can be effective in the treatment of thymoma, with a median survival of between 313 and 727 days according to retrospective studies. In the study by Palmer et al 2021, five rabbits received radiotherapy; three showed significant tumour reduction and one died during anaesthesia. Although few adverse effects were observed, no significant difference in survival was found compared to the group of rabbits with thymoma that were not treated, possibly due to the small sample size. Despite this, the rabbits that completed treatment showed clinical improvement, minimal toxicity, and good quality of life. Possible complications include localised alopecia, pneumonitis, and, in less frequent cases, delayed heart failure.

3. Corticosteroid therapy

Oral prednisolone (1–2 mg/kg SID) has been evaluated as palliative monotherapy with good results. In the study by Palmer et al 2021, six rabbits treated exclusively with glucocorticoids achieved a median survival of 401 days, significantly higher than that of untreated animals (133 days) and comparable to that of those treated with radiotherapy. No serious adverse effects were observed. This option is particularly useful when surgery or radiotherapy is not possible due to clinical or economic limitations. However, in the author's experience, some rabbits did not respond to corticosteroid treatment or developed clinical signs (dyspnoea, exophthalmos) over time, even after an initial favourable response to treatment.

4. Drainage of cystic components

In thymomas with a predominant cystic component, ultrasound-guided drainage can provide temporary symptomatic relief. This technique improves dyspnoea by reducing compression on the lung parenchyma. It can be repeated every 3 to 6 months, with survival rates of up to 9 months having been reported with this palliative intervention. It does not alter tumour progression, but it is a useful alternative when other options are not available or when surgery is the therapeutic option to reduce the size of the tumour.

DISCUSSION

The therapeutic management of thymoma in rabbits must be individualised, taking into account the patient's clinical condition, the technical and economic possibilities, and the experience of the veterinary team.



Although surgery can be curative, its risk and high degree of specialisation limit its use. Radiotherapy can offer good clinical results, but it is not without anaesthetic risks.

Corticosteroid therapy can be effective in prolonging survival and improving quality of life, without significant short-term side effects. Its affordability and safety make it a noteworthy alternative, especially when the surgical or anaesthetic prognosis is unfavourable.

The results also suggest that the effectiveness of treatments may depend on the histological subtype of the thymoma. Those with a high lymphocyte content would be more sensitive to radiotherapy and glucocorticoids.

Factors such as advanced age, comorbidities, or clinical severity may influence the choice of treatment and should be taken into account. Therefore, therapeutic decisions should be based on factors such as age, comorbidities, or clinical severity.

CONCLUSION

Thymoma in rabbits is a neoplasm that can be common and, despite its benign histological nature, can seriously compromise quality of life and life expectancy if left untreated. Surgery is the only curative option, but it is not always feasible. Radiotherapy, although costly and technical, is positioned as an option that can be effective. Corticosteroid therapy, on the other hand, stands out for its effectiveness, safety and accessibility, but in some cases only in the short term.

Ignoring treatment is neither ethically acceptable nor medically justifiable. Interventions, even palliative ones such as cyst drainage or corticosteroid therapy, offer substantial improvements in clinical outcome.

The management of thymoma in rabbits requires an informed and multidisciplinary approach. Up-to-date knowledge of the biological characteristics of the tumour and the available therapeutic evidence allows veterinarians to offer options tailored to each case and significantly improve the well-being of their patients.

BIBLIOGRAPHICAL REFERENCES

1. Palmer S, Duerr F, LoBue T, et al: Outcomes and survival times of client-owned rabbits diagnosed with thymoma and treated with either prednisolone or radiotherapy, or left untreated. *J Exot Pet Med* 2022; 38:35–43.
2. Harcourt-Brown FM. Thoracic surgery. In: Harcourt-Brown FM, ed. *Textbook of Rabbit Medicine*. 2nd ed. Saunders; 2014: 206-214.
3. Künzel F, Hittmair KM, Hassan J, Tichy A, Nell B. Thymomas in rabbits: clinical evaluation, diagnosis, and treatment. *J Am Anim Hosp Assoc*. 2012;48(2):97–104. doi:10.5326/JAAHA-MS-5697