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Case Study: Management of Hemothorax Secondary to Porcupine Quill Migration in a Canine Patient

Introduction

This case study explores a complex medical scenario involving a canine patient referred to Port City Veterinary Referral Hospital due to a severe hemothorax caused by migrating porcupine quills. This document provides a detailed account of the patient's clinical presentation, diagnostic findings, surgical intervention, and post-operative care. Primary Care Team includes **Surgeon: [Dr. Robert Hillman, DVM, DACVS](#)**, **Imaging: [Dr. Mason Holland VMD, DACVR](#)**, and **Anesthesiologist: [Dr. Ella Pittman DVM, DACVAA](#)**

Patient Overview

Animal Name: Mouse Roy

Species: Canine

Sex: Male

Age: 5.5 Years

Breed: Mixed

Clinical Presentation

Mouse was initially treated for porcupine quilling three weeks prior to referral. Multiple quills were removed from the thoracic region at various times by different providers. Despite these efforts, the patient exhibited worsening respiratory distress, characterized by an increased respiratory rate and decreased appetite, culminating in bouts of vomiting and unsettled behavior at night.

Physical Examination Findings (05-28-2024):

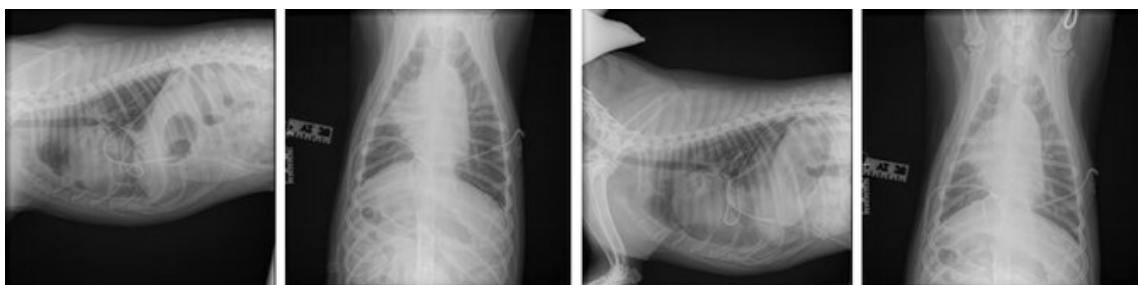
- **General Appearance:** Fearful, cautious handling required
- **Cardiovascular System:** Normal rate and rhythm, no murmurs
- **Respiratory System:** Slightly tachypneic with muffled breath sounds bilaterally
- **Gastrointestinal System:** Non-painful abdomen, no masses or fluid wave detected
- **Musculoskeletal and Integumentary Systems:** Ambulatory, no pain or lameness, no external quills observed
- **Neurological Exam:** Normal with no deficits

Diagnostic Imaging

Dr. Mason Holland VMD, DACVR

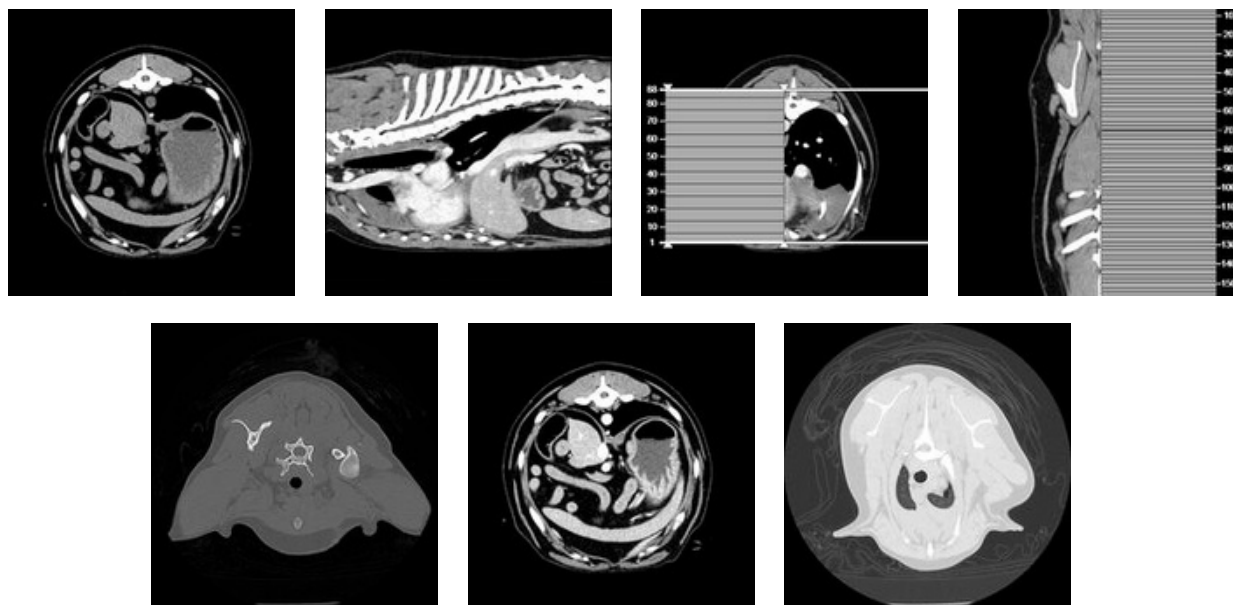
Radiographs (05-28-2024):

- **Findings:** Mild residual pleural effusion, small amount of pleural air, presence of chest tubes
- **Interpretation:** Post-chest tube placement with no primary intrathoracic lesions identified



Thoracic CT Scan (05-29-2024):

- **Findings:** While the CT scan focused our attention on the cranial mediastinum, the quills themselves were not apparent on the imaging. This ambiguity necessitated a comprehensive approach to ensure that no lung area, left or right, was overlooked.
- **Interpretation:** The CT findings were critical in guiding the decision for surgical exploration, leading to the choice of a median sternotomy to access the entire chest space for thorough examination and treatment.





Surgical Intervention

Procedure: Median sternotomy performed on **05-29-2024**

Surgeon: **Dr. Robert Hillman, DVM, DACVS,**

Anesthesiologist: **Ella Pittman, DVM, DACVAA**

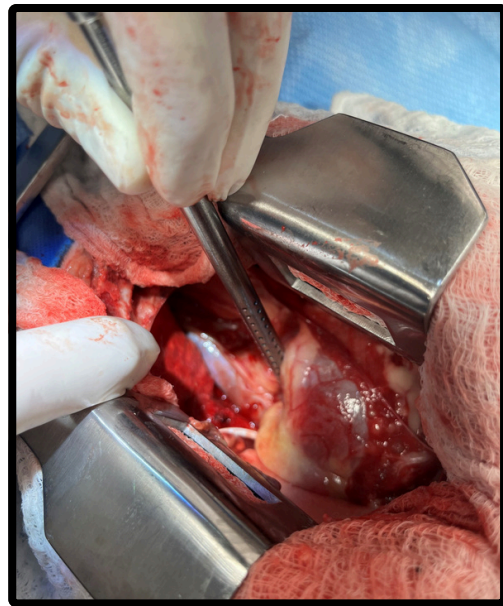
Surgical Findings:

- A quill was located penetrating the right side of the cranial vena cava with additional quills in the pericardium.
- A residual volume of frank blood was noted in the thoracic cavity, along with damage to the medial side of the right cranial lung lobe.

Procedure Details:

- A ventral midline incision was made followed by an oscillating saw median sternotomy.
- Removal of the quill from the vena cava and exploratory thoracotomy were performed.

Closure utilized orthopedic wire and layered suturing techniques





Postoperative Care and Monitoring

Incision Care: Mouse's incision was closed using intradermal sutures to minimize irritation and the potential for self-inflicted trauma. An Elizabethan collar was recommended to prevent licking or chewing at the incision site.

Monitoring for Complications: Close observation was required for signs of infection, increased redness, or discharge from the incision site. Regular follow-up appointments were scheduled to monitor healing.

Quilling Recommendations

Unfortunately, most dogs who get into trouble with porcupines do not learn from their mistakes. The best defense against porcupine quills is **prevention**. The best way to prevent quilling is to advise pet owners to keep their dogs on a leash. Avoid allowing the dogs to roam at dusk or after dark and prevent them from going into areas with known porcupine dens.

Should Mouse get quilled again in the future, there are a few things the owner can do before reaching the vet.

- 1.** Minimize movements and prevent him from rubbing his face if there are quills present. Manipulation of the quills may drive them deeper into the tissues, making it harder to retrieve them.
- 2. Do NOT** cut the quills - cutting the shaft makes the quill splinter more easily which ultimately makes it harder to remove. It may also allow for segments of quills to become lodged in the tissues.
- 3. Do NOT** attempt to remove quills yourself. Removing porcupine quills without the benefit of sedation or anesthesia and potent pain relief is extremely painful. This can result in a struggle, which can push the quills deeper, and a dog may lash out and bite, without meaning to hurt you.

Conclusion

This case highlights the challenges of managing hemothorax in canines resulting from foreign body migration, demonstrating the need for timely intervention and the complexities associated with extracting embedded quills from vital structures. Mouse's case serves as an educational cornerstone for veterinary professionals handling similar emergency cases.