Traumatic gallbladder rupture diagnosed by Computed Tomography and managed by partial cholecystectomy in a cat

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INTRODUCTION

Biliary tract rupture following abdominal penetrating injury (API) is uncommon in cats.

Although peritoneal effusion may frequently be observed during ultrasonographic examination, it is not specific for biliary leakage.

In human medicine, computed tomography (CT) is recommended as the first-line imaging choice in case of API.

The preferred method for confirmation is measurement of the peritoneal effusion to serum bilirubinemia ratio.

Our case described the interest of the use of CT in a cat diagnosed with biliary leakage consecutive to API.

Objectives: To describe the interest of the use of CT in a cat diagnosed with biliary leakage consecutive to API, and treated by partial cholecystectomy.

CASE DESCRIPTION

- A 1-year-old female domestic shorter cat (3.6 kg)
- 3 days anorexia and vomiting
- No history of significant trauma

PHYSICAL EXAMINATION

- Lethargy
- Dehydration (5%)
- Hypothermia (37.1°)
- Cranial abdominal pain
- Abdominal puncture wound**

LABORATORY

- Moderate leucocytosis : 29400/ μ l neutrophilic 15480/ μ l; ref=3500-25000/ μ l; 1180-11500/ μ l
- Elevated liver enzymes** : ALP 432 IU/l; AST 232 IU/l; ref =50-105 IU/l; 0-175 IU/l
- Hyperbilirubinaemia**: Total bilirubin: 44,37 μ mol/l; ref = 0-15 μ mol/l

THORACIC XRAY

- showed one pellet in the caudal left hemi-thorax and loss of serosal detail in the cranial abdomen

Diagnosis: Abdominal penetrating injury by gunshot

Computed tomography

- Recommended as the first-line imaging choice in case of API, in human medicine

CT EXAMINATION

Fig. 1

Fig. 2

Thoraco-abdominal CT scan: parasagittal reconstruction

- Intrahepatic pellet's trajectory identified (Fig.1)
- Empty gallbladder associated with a noncontinuous enhancement of the gallbladder fundus wall
- Free fluid around gallbladder (Fig.2)
- Pellet present in the left-diaphragm
- Multiple liver lacerations

CT allowed:

- Rapid and accurate abdominal organ assessment
- Precise location of the injury : gallbladder

Abdominocentesis

For diagnosis confirmation

Day 0 – Emergency unit

ABDOMINOCENTESIS ULTRASOUND GUIDED

US

- pericholecystic echogenic fluid
- Intralobular hepatic fluid (Fig. 3)
- Generalised abdominal steatitis (Fig. 4)

	Abdominal fluid	Blood
Aspect macroscopique	Yellow to green	
Density	1,042	
Total Protein (g/L)	60	70
Cytology	Neutrophil concentration (10 000/ μ L) Bilirubin crystals	
Total Bilirubin (μ mol/l)	474,3	44,37
Urea (g/L)	0,65	0,54
Creatinine (mg/L)	9,7	12,4
K ⁺ (mmol/L)	2	4
Glycaemia (g/L)	1,72	1,2
Bacteriology	Negative after 72h	

DEFINITIVE DIAGNOSIS: Bile Peritonitis

SURGICAL TREATMENT

Midline Coeliotomy

- Confirmed two site ruptures in the apical gallbladder
- One diaphragmatic tear
- Peritoneal effusion
- Cystic canal and common bile duct were pervious

Partial Cholecystectomy

- Catheterisation of gallbladder lesion (Fig. 5) gallbladder not dislodged from gallbladder fossa
- Apex removed
- Closed in a simple appositional continuous pattern with monofilament absorbable suture material (Biosyn 4-0, Covidien)
- Omentalisation

Post-operatively treatment

- Analgesia : buprenorphine 20 μ g/kg, q8h, 5 days
- Antiemetics : maropitant 1mg/kg, q24h, 5 days
- H2-blockers : Ranitidine 2 mg/kg, q8h, 7 days
- Antibiotics : metronidazole 12,5 mg/kg, q12h and amoxicillin 20 mg/kg, 3 days
- stopped after abdominal effusion revealed no bacterial grow

Outcome

- The cat recovered uneventfully from the surgery
- Discharged at day 5 after surgery
- At 8 months and 6 years telephonic follow up: No clinical signs

Day 0 – Imaging unit

Day 0 – Surgery unit

Day 1-4 – ICU

Day 5

DISCUSSION - CONCLUSIONS

In human medicine, computed tomography is recommended as the first-line imaging choice in cases of abdominal penetrating injury. Our case describes the benefits of CT in identifying the bile leakage site subsequent to abdominal penetrating injury. This could encourage the use of CT to help surgeons to plan surgery. Furthermore, it is the first use of partial cholecystectomy as surgical treatment in cats. The good clinical outcome without further repercussions appeared a viable alternative to total cholecystectomy in non-diseased gallbladder.

EQUIPMENTS

BrightSpeed, 16 slices, General Electric Medical Systems
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REFERENCES

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