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# Abdominal migrating foreign body: CT and Ultrasound guided surgical approach

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## PRESENTATION

Abdominal vegetal migrating foreign body (AVMFb) are the suspected etiology for sub lumbar muscle abscission and flank fistulas in dogs (1-2).
The suspected origin of these foreign body is inhaled FB with a suspicion of migration out of the lung through the pleural space and the diaphragm muscle and progression alongside the midline in clause vicinity of major abdominal vessel especially the aorta.
Veterinary literature showed several instance and features of this migration and different reports might be taken has proof of this very special migrating path.

## TREATMENT PRINCIPLES

Clinical presentation associated with AVMFb is classically represented by fever, lethargy, abdominal pain, flank discharging tracts. These poorly specific signs are frequently responsive to empirical medical treatment but resumes frequently after the termination of the treatment.
The definitive diagnosis is made by transectional imaging and abdominal ultrasonography (1-2-3). Diagnosis of an organized/diffuse inflammatory reaction within the iliopsoas muscle is characteristic and potentially a grass seed can be visualized under ultrasound guidance (less frequently with CT). The definitive treatment required surgical access of the infected cavity, thorough irrigation/lavage and exploration in association with long lasting draining cavity packing with omentum (4-5). Although favorable outcome can frequently be observed without identification and retrieval of a foreign object, it is believed that complete retrieval of the initiator foreign body dramatically improved the chance for long term resolution of the infection.

## STEP by STEP management

1. Every single case received Contrast CT study prior surgery including chest and abdomen to tract AVMFb path before progressing to surgery.
2. A large xipho-pubar laparotomy is performed and the right kidney gutter is identified. The intestinal and abdominal content is reflected to the left by lifting the transverse duodenum ventrally and medially toward the left. Large abdominal swabs and malleable retractor are used to protect and retract the liver cranially and urinary bladder is catheterized and fully emptied. Shou left gutter being exposed then the meso-shift is made using the meso-colon pushed ventrally and medially to the right.
3. The surgeon identifies the epiploic foramen and its boundaries, especially the cranial mesenteric artery which is a useful landmark to report on the preoperative CT to guide further dissection. Should the AVMFb‘s abscess being very cranial, the right kidney might be mobilized for a lateral retraction and the renal pedicle is clearly identified and isolated on vascular loops.
4. With all these landmarks readily prepared an addition abdominal ultrasound is repeated observed the so far “untouched” iliopsoas muscle to guide for further dissection and peroration of the abscessed cavity. It is important to leave the area where the FB might be untouched prior this ultrasound to prevent creating ”artefax” that might prevent meaningful US examination.

5. At this stage it is frequent that the Imager will directly identify and retrieve the foreign material with little help of the surgeon unless extremely thickened tissue prevents blunt dissection with a classic Hartmann's foreign body forceps.
6. When foreign body is identified and retrieve the site of incarceration/abscess cavity is more widely open for visual inspection/drainage/irrigation and omentalization.
7. The abdomen is closed in a routine manner.
8. Antibiotherapy is targeted on culture/sensitivity study and conducted for 4 weeks. CT control is advised 6 months postoperatively.

The use of the omentum (well vascularized) is paramount for successful management, omentum will seal the cavity, achieve revascularization and ensure long duration healing. It should be placed and fixed in the whole cavity even if the psoas abscess drains through a flank fistula. Reports and clinical experience show that even when foreign material cannot be found, successful omentalisation allows fistula healing and long duration successful outcome.

**Tips :**

- Examination and Surgery without prior medical treatment especially antibiotics or anti-inflammatory drugs: severe inflammation/abscission will allow larger lesions to be observed and found and will help finding lesions. Inflammation allows as well to increase "back ground" features for US and CT that could help identifying the foreign body.
- Readily understanding of the abdominal vascular anatomy
- Large abdominal preparation and retraction
- Fixation of the vascularized omental flap as deep and medial as possible to ensure long duration drainage.

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