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CLINICAL CASE

Postoperative intracranial aspergillosis following frontal meningioma resection in a dog☆

Aspergillose intracrânienne postopératoire après la résection d'un méningiome chez un chien

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Summary A case of aspergillosis following neurosurgery was documented in a 9.5-year-old female Boxer. She was presented for rhinorrhoea 5 weeks after craniotomy, performed for removal of a frontal meningioma. Cranioplasty had been performed using polymethyl methacrylate. This is the first documented case of aspergillosis following cranioplasty in veterinary medicine.

MOTS CLÉS
Chien ;

Résumé Un cas d'aspergillose intracrânienne survenue après une neurochirurgie est documentée chez une femelle Boxer de 9,5 ans. La présentation initiale était une rhinorrhée apparue 5 semaines après une craniotomie. Une cranioplastie a été réalisée avec du polyméthyl

Abbreviations: PMMA, Polymethyl methacrylate; CT, Computed tomography.

☆ Crédits de formation continue. — La lecture de cet article ouvre droit à 0,05 CFC. La déclaration de lecture, individuelle et volontaire, est à effectuer auprès du CNVFCC (cf. sommaire).

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Aspergillose ;
Aspergillus fumigatus ;
Craniotomie ;
Cranioplastie ;
Polyméthyl méthacrylate

méthacrylate. Il s'agit du premier cas d'aspergillose documenté après cranioplastie en médecine vétérinaire.

Case report

The resection of cerebral masses often necessitates a large surgical field. The surgeon must decide whether to preserve the calvaria and re-implant it to close the defect, or to use an allograft. In humans, the calvaria has an outer and inner table, which enables the collection of a sufficiently large bone graft. However, in dogs, the bones in this region are much too thin to allow re-implantation, such that allografts are often necessary. Polymethyl methacrylate (PMMA) enables easy reconstruction of extensive defects of the calvaria [1,2], but is associated with the risk of infection, reported to be as high as 13% in human medicine [3]. This case report illustrates an unusual complication of a PMMA prosthesis used to reconstruct the calvaria.

Case history

A 9.5-year-old, neutered female Boxer was referred to our hospital for generalized tonic-clonic seizures that first appeared 1 year prior to presentation, and that had not responded to treatment with phenobarbital and potassium bromide (Crisax; TVM). The owners also reported behavioural changes that first appeared several weeks prior to presentation. Physical examination did not reveal any abnormalities. Neurological evaluation revealed anisocoria with absent direct and indirect pupillary light reflex on the right. Vision was preserved.

Computed tomography (CT) examination of the brain with a 16-slice scanner revealed a right extracerebral hyperdense lesion with a calcified central zone that showed enhancement after the IV injection of iodine-based contrast medium, measuring 2 cm in diameter on post-contrast injection images (Fig. 1). It was associated with hyperostosis in the right frontal sinus, a hypodense area compatible with cerebral oedema, moderate hydrocephalus, and discrete asymmetry of the lateral ventricles (Fig. 1). No other abnormalities were visible on the CT examination.

The most probable hypothesis based on CT images was a meningioma or other extra-axial neoplasm. The patient was negative for pulmonary metastasis on thoracic CT examination. Cerebrospinal fluid analysis was normal.

A pre-operative panel, including complete blood count, full biochemical profile, electrolytes, and coagulation profile, did not reveal any significant abnormalities.

A craniotomy was performed. The cranial vault was opened in the frontal area overlying the mass. Protrusion of the underlying tissue was visible. The meninges were

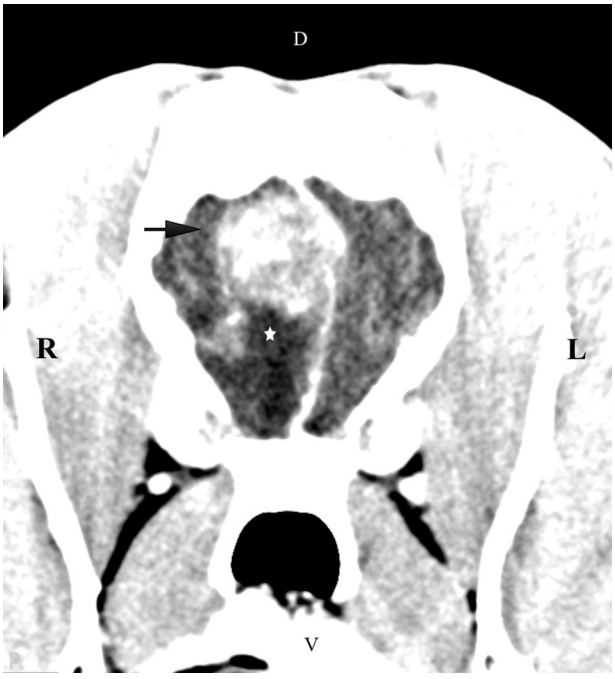

Figure 1. Post-contrast soft tissue window transverse CT image of the skull. A right extracerebral hyperdense lesion with a mineralized central zone is revealed (arrow). Notice the hypodense region, compatible with cerebral edema (asterisk).

incised in a cross shape centred over the protrusion, and reflected to expose the mass; the colour and density of the latter were not the same as the surrounding brain tissue. The mass was removed *en bloc*, haemostasis was achieved with the bipolar electrocautery and cellulose polymer (Surgicel, Ethicon); the meninges were partially sutured. During surgery, the sinus mucosa was inspected and appeared normal, with no signs of inflammation. After resection of the mass, the resected segment of bone was used as a mould to create a PMMA cast. The prosthesis was made slightly larger than the area of the defect to protect the brain from trauma, and it protruded over the nasal cavities. Skin was sutured.

Peri- and postoperative pain management included fentanyl (Janssen) at an initial dose of 2 μg/kg followed by 2 μg/kg/h, morphine (morphine chlorhydrate; Aguettant) 200 μg/kg/4 h for 48 hours, and ketamine (virbac) at an initial dose of 500 μg/kg followed by 500 μg/kg/h for 6 hours. A bolus of phenobarbital (Gardenal; Sanofis — Aventis France) at 16 mg/kg was administered to prevent postoperative