

Parrot Mouth and Oronasal Fistula with a Presumed Teratoma Hanging from the Soft Palate in a Cattle Calf

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Abstract

Two days old native breed male cattle calf was admitted to the Veterinary Teaching Hospital, Assiut University, Assiut, Egypt, with facial and oral anomalies and consequent respiratory snoring and suckling difficulty. The condition was diagnosed as brachygnathism with oronasal fistula and a presumed teratoma hanging from the soft palate. The tumor was surgically excised, and the fistula was repaired using the sliding flap technique. Another surgery was determined for correction of the brachygnathism later.

KEYWORDS

Calf, Oronasal, fistula, Brachygnathism, Soft palate.

INTRODUCTION

Congenital anomalies are structural or functional defects that emerge at birth. Genetic or environmental factors may be predisposing factors for these abnormalities (Blowey and Weaver, 2011). The genetic variables may have an influence during the first two weeks of pregnancy, whereas the environmental factors may arise later (14-42 days of pregnancy) (Johnson *et al.*, 1985; Aiello, 1998).

Failure of normal closure of the primary palate (lip and incisive bone) or the secondary palate (hard and soft palate) resulting in cleft lip (hare lip) or cleft palate, respectively. The inability of the palatine shelves to fuse during pregnancy results in congenital oronasal fistulas. Mostly, cleft palates are associated with cleft lips and skeletal abnormalities as arthrogyroposis in different animal species (Kahn and Line 2005). Brachygnathism or parrot mouth is a congenital anomaly, where the upper jaw is longer than the lower jaw. The mandible lies in an excessively caudal position in relation to the upper jaw (Blowey and Weaver, 2011).

The incidence of congenital malformations in animal represents 2 % to 3.5 % of all births. Moreover, such anomalies represent a threatening for animal welfare due to reduction in productivity and reproductivity of farms and consequently an economic

loss (Leipold *et al.*, 1983). External factors such as massive manipulation during pregnancy diagnosis in the early stages of gestation or cumulative effect of ingested toxic plants or radiation may have teratogenic effects and reduce the likelihood of genetic factors (Greene *et al.*, 1973; Albarella *et al.*, 2017).

The oronasal fistula, parrot mouth, or palatine tumors were recorded in farm animals but individually (Aiello, 1998; Greet, 2000; Kahn and Line 2005; Gracia-Calvo *et al.*, 2014). Here, this case-report represents a complex of orofacial congenital anomalies; brachygnathism or parrot mouth with oronasal fistula and a presumed teratoma hanging from the soft palate in a cattle calf, as well as the standard surgical management in such cases.

Case history and Clinical examination

Two days old native breed male cattle calf was admitted to the Veterinary Teaching Hospital, Assiut University, Assiut, Egypt, with owner's complaint of difficulty in suckling, milk reflux via the nostrils, and presence of abnormal structure protruded from the mouth.

The clinical examination revealed that the calf had brachygnathism (parrot mouth), snoring, and leakage of some milk from the nostrils. Further oral examination confirmed the presence of



Fig. 1. A) cattle calf with brachygnathism (parrot mouth) and a presumed tumor mass protruded from the oral cavity. B) The oral examination revealed presence of an oronasal fistula and a tumor mass hanged from the soft palate. C) Crushing of the base of the tumor mass before its surgical excision. D) The tumor mass after surgical excision, note the presence of teeth islands of the skin and hair in it. E) The closure of the oronasal fistula. F) The calf after the surgical correction.

an oronasal fistula and a presumed teratoma (contained bones, teeth, islands of skin and hair) hanging from the hard palate (Fig. 1 A, B). Urgent surgical interference was planned to excise the tumor and close the oronasal fistula. Further surgery was decided to manage the brachygnathism later.

Anesthesia and surgical interference

The animal was prepared for aseptic surgery and premedicated with intramuscular (IM) 0.05 mg/kg 2% xylazine HCl (Xyla-Ject, ADWIA Co., SAE, Egypt). A circular infiltration anesthesia was conducted using 10 ml of 1% lidocaine HCl (Dibucaine, Sigma-Tec Pharmaceutical Industry Co., Egypt) around the base of tumor and fistula.

Crushing was applied at the base of the tumor for five minutes (min) using a straight artery forceps and then removed using straight scissors (Fig. 1 C, D). The sliding flap technique was performed to repair the oronasal fistula (Salisbury, 1998; Barakzai and Dixon 2005). Briefly, A 5 cm long bilateral surgical incisions were made few centimeters lateral to both edges of the fistula. The edges of the fistula were slightly debrided creating raw surfaces. The mucoperiosteum flaps of the hard palate were then bluntly elevated and bulled medially to cover the fistula. The edges of the fistula were closed with simple interrupted suture pattern using no. 0 silk.

Post-surgical care and follow up

The calf received intramuscular (IM) 8 mg/kg procaine penicillin and 10 mg/kg dihydrostreptomycin sulphate (Pen & Strep, each ml contains: procaine benzylpenicillin 200 mg and dihydrostreptomycin sulphate equivalent to dihydrostreptomycin 200 mg, Norbrook Laboratories Limited Newry, Co. Down, Northern Ireland), once daily for five consecutive days. The oral sutures were removed 10 days post-surgery without recording any wound complications (infection or dehiscence) achieving healing by the primary intention (Fig. 1 E, F).

DISCUSSION

This case report described a complex of congenital anomalies of brachygnathism, oronasal fistula, and oral tumor in a calf. Moreover, it provides the surgeons with the standard surgical management of such cases. Here, under sedation and local analgesia, the palatine tumor was successfully excised, and the oronasal fistula was closed with less invasive technique and away from the risk of general anesthesia.

The tongue flaps, buccal musculomucosal flaps, utilization of mucoperiosteal alveolar ridge tissue, and mucoperiosteal elevations are procedures have been described for surgical repair of the palatal fistulae in humans and small animals (McCarthy, 1996; Salisbury, 1998; Honnebier *et al.*, 2000). The simplest technique for surgical repair of the palatal fistulae is to raise a mucoperiosteal flap from the hard palate, similar to how primary cleft palate repair is done. However, this procedure has not been described previously in ruminants.

Tumors attached to soft palate were planned to be firstly managed by amputation to facilitate the closure of the mouth and nursing.

The surgical corrections of congenital defects in malformed animals plays a vital role in rescuing these animals and minimizing the economic losses by elongating their survival rate. However, putting these animals for reproduction in animal farms again is contraindicated as such congenital defects due to gene mutations may be inherited from the parents (Greene *et al.*, 1973). Proceedings must be applied through animal research centers to reduce environmental pollution, the main producer of genetic mutation, as well as the development of different congenital anomalies in animal livestock.

CONFLICT OF INTEREST

The authors declare that they have no competing interests.

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