

MAXILLARY BRACHYGNATHIA IN A COLT

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SUMMARY

Dynamic compression plates (DCP) and screws fixation were used successfully for correction of severe malocclusion due to congenital maxillary brachygnathia in a colt. The plates were fitted after bilateral osteotomies of the nasal branches of the premaxilla.

(Chambers, 1981; Maretta et al., 1990; Boudrieau et al., 1994 & 2004) in dogs and cats and (Huston, 1977; Colahan and Pascoe, 1983; Gift et al. 1992) in horses.

The purpose of the present work was to report surgical correction of severe congenital maxillary incisive malocclusion in a colt.

INTRODUCTION

Brachygnathia is an abnormal shortening of either the maxilla or the mandible (McIlwraith, 1984). The defect may be congenital or acquired shortly after birth (Huston, 1977; DeBowes, 1990) in foals and (Kandeel et al., 1992) in cattle. Maxillo-facial defects may result in malocclusion which makes eating, drinking and prehension difficult beside the cosmetic blemish. Restoration of normal occlusion and cosmetic shape may be achieved by corrective surgical techniques

CLINICAL REPORT

A 2-year-old mixed breed colt was admitted to the surgery clinic of the faculty of veterinary medicine, Cairo University for severe malocclusion since birth. On examination, the general condition of the colt was poor which was attributed to malocclusion problems. The upper lip and the premaxilla were deviated to the right (Fig. 1). Oral inspection revealed deviation of the whole maxillary incisor arcade as much as normal occlusion could not be obtained. Radiography demonstrated the maxillary malocclusion due to the right excursion of the premaxilla (Fig. 2).

Surgical technique

Cefalexine (Cefotax®) 20mg/kg b.w.i.m was administered preoperatively. General anaesthesia was induced with thiopentone sodium 5 mg/kg b.w. i.v after premedication with Xylazine HCl (Rompun®) 1.0 mg/kg b.w. and ketamine HCl 1.5mg/kg b.w. i.v.

The colt was positioned in lateral recumbency. The oral cavity was thoroughly irrigated to remove feed materials and then swabbed with povidone iodine (Betadine®) solution. The area facing the skin of premaxilla was prepared for aseptic surgery. Approach to nasal processes of the premaxilla was made by cutaneous incision on the mid-dorsal line. The skin incision was debrided to expose the interdental area between the incisors and the premolars at both sides of the maxillary nasal processes. The nasal branches of the premaxilla were osteotomised at the mid-interdental space using a wire saw. A V-shaped wedge was osteoectomised with bone chisel from the left deviated nasal process of the premaxilla (Fig. 2). Two 4.5 mm 5-hole broad dynamic compression plates (DCP) were contoured and fitted to the labial aspects of both severed nasal processes of the premaxilla by two 4.5mm cortical screws on each side. The cortical screws were fixed in a load position to obtain rigid stabilization for each plate, leaving the other holes empty to avoid screw insertion into the roots of the teeth. The normal occlusion alignment was maintained by keeping the jaws closed using dental interlocking of 18-gauge

cerebrage wire anchored into a 14-gauge cutting needle between the maxillary and mandibular incisors (Fig. 3). Closure of the soft tissues was routine. After care consisted of continuing of Cefalexine® antibiotic treatment every 12 hours for 5 days, feeding of bran mash every 12 hours and flushing the mouth twice daily with water to remove food debris. Skin sutures and the cerebrage wire of the incisors were removed after 10 days P.O. The colt was discharged with instructions to continue bran mash feeding for extra 4 weeks besides daily flushing of the mouth and not to halter the animal.

RESULTS AND DISCUSSION

The colt was re-evaluated after 2 month P.O. The owner reported satisfactory results in terms of improvement of food prehension and drinking besides the procuring of normal cosmetic shape. Radiography revealed stable metallic implants and maintained alignment. Assessment of bone healing was difficult because of the existence of overlying metallic implants. The amount of disparity was markedly reduced with improved incisive occlusion (Fig. 4).

This report proved the effectiveness of surgical intervention in reducing the degree of incisive malocclusion in horses. Similar results were reported by (Gift et al.,1992). In this respect interdental fixation offers the best chance of proper dental occlusion (Murch, 1980; Tent, 1985 ; Wilson et al.,1990).

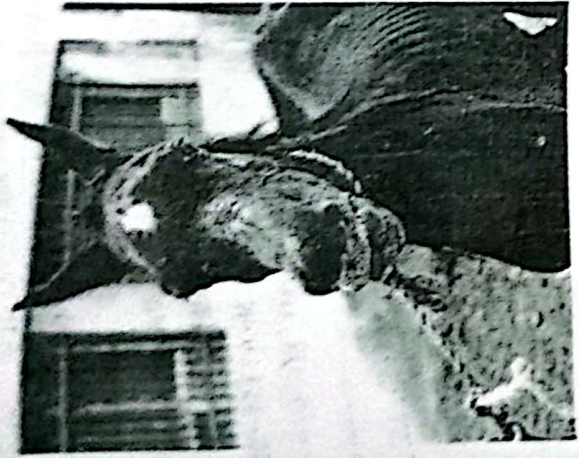


Fig. 1: A 2-year-old colt with maxillary incisive brachygnathia .



Fig. 2: Oblique lateral radiograph shows malocclusion due to maxillary incisive deviation. The dotted lines demonstrate the V- shaped wedge osteotomy of the nasal processes .

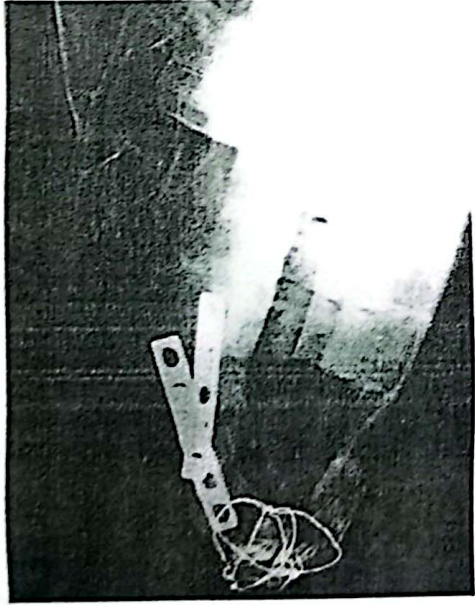


Fig. 3: P.O. oblique lateral radiograph shows the position of DCP and dental interlock of the incisors with cerclage wire .



Fig. 4: Postoperative restoration of normal premaxillary occlusion

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