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Case Report

Bilateral coronoidectomy, the panacea for trismus-sequel of post op radiotherapy: a case report

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ABSTRACT

Trismus is the untoward sequel of the radio therapeutic modality incorporated in head and neck malignancy. The restricted mouth opening progresses gradually leading to reduced oral intake and thereby a markedly debilitated individual. Oral exercises, dilatational devices and masticatory apparatus surgical interventions are undertaken as the case maybe.

Keywords: Trismus, Coronoidotomy, Limited mouth opening, Temporalis muscle, Heister

INTRODUCTION

Trismus is an irreversible contracture of the muscles of mastication thereby restricting normal mouth opening.[1] The varied etiologies leading to trismus are head neck radiation therapy, neoplasia, connective tissue diseases, complication of local anesthetic injections, temporomandibular joint disorders or ankylosis, oral submucous fibrosis, pericoronitis, impacted third molar, masticator space infection, myositis and localized trauma.[2,3] Inspite of recent advances in radio therapeutic modalities there remains a high risk of acute and chronic side effects with 50% of patients experiencing loco-regional side-effects.[4] Usual side-effects include xerostomia, dental caries, periodontal disease, mucositis, skin changes and fibrosis. More debilitating side-effects are osteoradionecrosis (ORN) and post radiation trismus.[5,6] Post radiotherapy radiation trismus due to the fibrosis of the mandibular elevator muscles poses significant issues in the care of head and neck oncology patients.[7] Normal inter-incisor distance is approximately taken as 40-45 mm at maximum mouth opening. Trismus is diagnosed made when maximum interincisal distance (MID) is less than 40-45 mm. In dentulous patients it is measured between the incisal edges of maxillary and mandibular central incisors.[8,9] In edentulous subjects, the distance is measured between the upper maxillary and the lower mandibular alveolar ridge.[10] Radiotherapy trismus is consequent to fibrosis in muscles of mastication. The fibrosis not apparent immediately following radiation but progresses as mucositis recedes. Severity of trismus depends on the source of radiation dosage and number of fields radiated.[7,8,11,12] Clinical management incorporates different modalities subject to patient's condition, i.e. surgery, forced opening of mandible, use of opening devices and modification of prosthesis.[9,10] This article

elaborates on surgical intervention in post radiation trismus.

CASE REPORT

A 65-year-old patient suffering from squamous cell carcinoma of the buccal mucosa on the left side was operated upon for local wide excision with supra omohyoid level I-IV neck dissection. After six weeks he was referred for a course of postoperative 60 Gy radiotherapy. There was severe trismus noted. The limited mouth opening markedly diminished the quality of life due to difficulty of speech, mastication and deglutition. He was advised mouth opening exercises and use of Heister screw. Unfortunately there was not much improvement and inter-incisor opening was limited to 1 cm approximately (Figure 1). He was taken up for bilateral coronoidectomy under general anesthesia. A vertical incision was given on the mucosa overlying the anterior border of the coronoid process; the temporalis muscle was shaved off, the anterior and superior borders followed by an oblique osteotomy. This completed the coronoidectomy. Similar procedure was undertaken on the opposite side (Figure 2 A and B). Since an inter-incisor distance of 5 cm was achieved a masseter slide was not carried out (Figure 3 A and B). Post operatively on day 6th the inter-incisor distance was 2.5 cm and was on 20 cc syringe dilatational physiotherapy. Later Heister screw was to be restarted.

Figure 1 (A and B): Pre operative inter-incisor distance 1 cm.

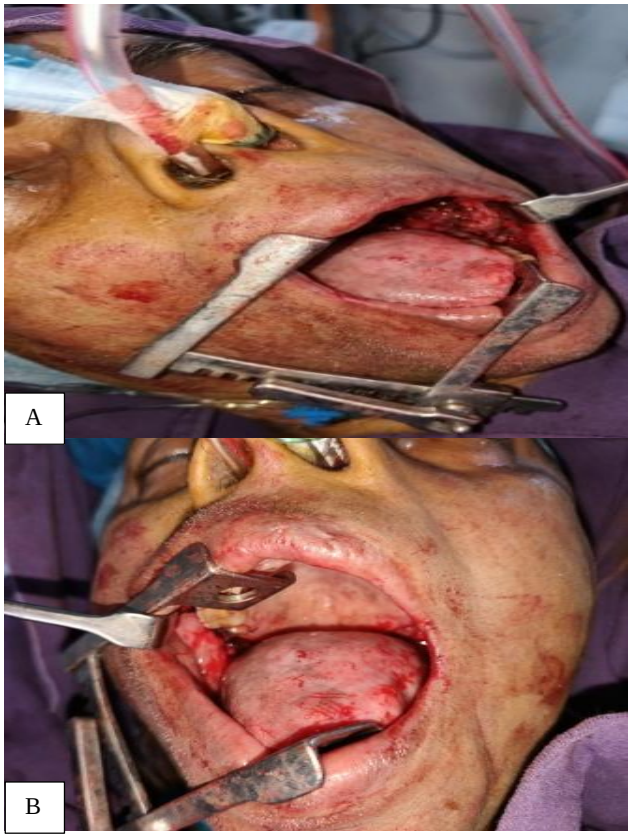

Figure 2 (A and B): Intra operative coronoidectomy left side and right side.

Figure 3 (A and B): Intra operative inter-incisor distance achieved 5 cm.

Figure 4 (A-C): Post operative inter-incisor distance 2.5 cm on day 6.

Figure 5: Heister mouth opening screw.

DISCUSSION

There is marked trismus as a late sequel to surgical interventions or radiation therapy in the head and neck region.[11] Trismus rectification by surgery is a routine to check this postoperative situation. Usual second surgery in cancer patients to relieve trismus is usually avoided as there is history of previous radiotherapy in the is region, unwillingness to repeat surgery and financial constraints. Forced mandiular opening as a corrective intervention for trismus is quite excruciating and necessitates general anesthesia with difficult and often blind intubation. Different modalities have been utilized to counteract trismus and increase the inter alveolar space. Prevention is the best treatment for trismus following radiotherapy. When the major muscles of mastication fall within the field of irradiation, trismus is always anticipated. Daily jaw exercises are advocated to maintain maximum mouth opening and maximum jaw mobility. Increasing number of tongue spatulas can be inserted between the anterior incisor dentition, serving both as a wedge and as a visual gauge to assess the degree of opening. In advanced cases, a 'dynamic bite opener', like the Heister screw is utilized to dilate the oral opening.[12,13] This device is constructed from two stainless-steel rods welded to the sides of an arch-shaped stainless-steel plate and it can be screwed open gradually.

CONCLUSION

Bilateral coronoidectomy and Heister mouth opening retaining appliance can reduce postoperative pain related to the mouth opening training and produce better clinical outcomes in individuals with post radiotherapy trismus.

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