Case Report

Unusual causes of reduced mouth opening and it’s suitable surgical management: Our experience

Sunil Kumar Gupta, Amar S. Rana, Deepak Gupta, Gaurav Jain, Puneet Kalra

ABSTRACT

Reduced mouth opening is a common clinical problem and many individuals experience it at least once in his or her life and most dental practitioners see patients with restricted mouth opening quite often. It can occur due to a variety of underlying conditions which may involve complex factors. Hence, it is essential for the clinician to thoroughly investigate and examine these cases for proper diagnosis and its appropriate management.

Key words: Reduced mouth opening, ankylosis, caustic soda

INTRODUCTION

The problem of reduced mouth opening is caused by variety of reasons. This particular clinical condition cannot be attributed to any particular disease or condition, as it may be a symptom of number of conditions. In healthy individuals mouth opening is around 30-50mm. But when the mouth opening is limited to a maximum of 20mm the individual is said to have a reduced mouth opening or trismus.

We are presenting five cases of reduced mouth opening, with unusual etiological factors like caustic soda ingestion, oral sub-mucous fibrosis, space infection, temporomandibular joint ankylosis and zygomatic arch fracture and their surgical management.

CASE REPORTS

Case 1 (Caustic soda ingestion)

A 28-year-old lady, reported with reduced mouth opening and almost nil tongue movement, following caustic soda ingestion accidentally 4 years back. The chemical injury was limited to lips and mouth, but esophagus was spared and had not been injured because she spit out the caustic soda without swallowing. On examination, facial appearance was normal, but her mouth opening was reduced to 1 cm and tongue was totally fixed to the floor of the mouth [Figure 1]. Vertical and circular fibrous bands were present on buccal mucosa bilaterally extending from corner of mouth to molar region. The treatment done was incision of contracted scar tissue on both sides of buccal mucosa extending from commissure to third molar, followed by submucosal dissection. The same procedure was done on the other side for release of contracture and mouth opening of around 3.5 cm was achieved. This was followed by release of tongue adhesion from anterior to base of the tongue. Split skin graft was taken from left thigh and was placed on the ventral surface of the tongue and on buccal mucosa bilaterally [Figures 2–4].

Case 2 (Oral submucous fibrosis)

A 45-year-old female patient reported with complaint of reduced mouth opening. She had a history of eating pan for last 20 years. She had quit the habit 2 years back due to minimal mouth opening. She had consulted at various centers and had taken every possible medicinal treatment during the last 10-year period. But to her agony, her mouth opening did not improve. In the due course of time, she had to take anti-depressants, which is still going on. On examination, the mouth opening was just 13 mm and posterior teeth were impinging on buccal mucosa [Figure 5]. Because she had already taken all medicinal treatments including intraliesional corticosteroid injections, we were left with only one choice and that was of surgery. The treatment done was release of bilateral fibrous bands, bilateral coronoidotomy, and...
reconstruction with buccal pad of fat. She underwent vigorous physiotherapy and had been advised to do so for a longer period of time [Figure 6].

**Case 3 (Sub masseteric space infection)**

A 45-year-old male patient of rural region reported to the Department of Oral and Maxillofacial Surgery with the complain of pain in lower back tooth since 1 month, which aggravated 10 days back with marked swelling at the angle of mandible and reduced mouth opening [Figure 7]. At the time of reporting, the patient had severe trismus (nil mouth opening).

---

**Figure 1:** Preoperative photograph (complete adhesion of tongue to floor of the mouth and 1 cm mouth opening)

**Figure 2:** Intraoperative photograph of skin graft placed at buccal mucosa after excision of fibrous bands

**Figure 3:** Intraoperative photograph of skin graft placed at ventral surface of the tongue after releasing tongue adhesion with the floor of the mouth

**Figure 4:** Postoperative photograph with improved mouth opening

**Figure 5:** Preoperative photograph

**Figure 6:** Postoperative photograph
with chill and fever and he was looking very ill. The patient was given intravenous fluids to rehydrate and intravenous antibiotics were started. After examination and investigation, submasseteric space abscess was the final diagnosis. Incision and drainage was done. Extraoral incision was done [Figure 8] to drain the pus, then forceful mouth opening was done and carious exposed broken 3rd molar was extracted. A corrugated rubber drain was put on for the next 48 hours. The patient took around 1 month to become normal after taking a course of antibiotics and muscle relaxant.\(^{[3]}\)

**Case 4 (TMJ ankylosis)**

A 14-year-old male patient reported with complaint of inability to open the mouth. The patient had history of fall from roof 1 year back and gradually mouth opening was reduced to zero [Figure 9]. He had scar mark over chin with no facial asymmetry. There was no condylar movement bilaterally. Orthopantomogram (OPG) and computed tomography (CT) revealed bilateral bony union between condyle and glenoid fossa. All the investigations were within normal limits. Bilateral gap arthroplasty along with bilateral coronoidectomy was done and 45 mm mouth opening was achieved [Figure 10].\(^{[4]}\)

**Case 5 (Zygomatic arch fracture)**

A 20-year-old female patient reported with chief complaint of reduced mouth opening and an appreciable depression over right temple region. The patient had history of assault 20 days back. Submentovertex view revealed V-shaped zygomatic arch fracture [Figure 11] and this causing hindrance in opening the mouth. Gillie’s temporal fossa approach\(^{[3]}\) was used to reduce the fracture [Figure 12]. No fixation was required as the fracture was displaced around vertical axis.\(^{[5]}\)

### Results

We had done the treatment of the reported cases of trismus according to the underlying cause. All of them had favorable outcome and the patients are very much satisfied.


**DISCUSSION**

Cases of caustic soda ingestion and subsequent surgery have been rarely reported in the literature. Many grafting materials are tried in the reconstruction.[1] Skin graft was also used by many surgeons in the past, but was not considered as a popular choice of graft material in such situations, because of dehiscence and further loss of the skin graft and thereby relapses, but in our case skin graft was taken up very well. Even after 1 year of the surgery, no complication has been reported. In this particular case, tongue was totally fixed to the floor of the mouth (no movement). Releasing the tongue from the floor and placement of skin graft at the ventral side of the tongue produced an excellent result with sufficient mobility of the tongue.

OSMF is still a condition present very commonly especially in developing countries due to known reasons of chewing tobacco, pan, etc. Various medicinal and surgical treatments are being recommended and performed, depending on the severity and duration of the disease.[2] Our case was diagnosed as OSMF 10 years back and she was given all the possible medicinal treatments including intralesional corticosteroid injection but the patient was not relieved of the disease. When she came to us, we proposed the surgical option and did bilateral resection of the bands, coronoidotomy and reconstruction using buccal pad fat graft, followed by vigorous physiotherapy. Though it was a tough decision for the patient to be ready for this kind of surgery, she gave the consent and the result of buccal pad graft is also very encouraging.

Space infections can cause trismus; timely intervention in the form of incision and drainage is the key in such a situation.

Patients of temporomandibular ankylosis have trismus and limited mouth opening ranging from zero to a few centimeters. The first goal was to achieve adequate mouth opening and the second goal was to maintain this by the physiotherapy. We got excellent result by osteoarthroplasty.

Zygomatic arch fracture, if depressed, restricts the movement of coronoid process and can cause temporary trismus which can be simply corrected by elevating the arch. Sometimes, the zygomatic arch/bone unite with the coronoid process (malunited fracture). Patients go in a trismus which can be corrected by refracturing the arch and the coronoid process and achieving the mouth opening.

Although cases of trismus condition come to clinician not quite often and it seems that these cases are sometimes difficult to diagnose, if we take proper history and do thorough clinical examination and investigations, one can treat these cases very efficiently.

We encountered a few cases of trismus with varied etiologies. But each one of them had undergone the treatment according to the underlying cause.

**CONCLUSION**

We would like to say that although the cases of trismus condition seems to be difficult initially, by proper diagnosis and planning we can provide appropriate treatment to the patients with a good prognosis. Skin grafts are still a good reconstructive option for the soft tissues and buccal fat pad is also a very good option for oral and maxillofacial cases because of its proximity.

**REFERENCES**

1. Ichioka S, Nakatsuka T, Yoshimura K, Kaji N, Harii K. Free jejunal
patch to reconstruct oral scar contracture following caustic ingestion. Ann Plast Surg 1999;43:83-6.
2. Mokal NJ, Raje RS, Ranade SV, Prasad JS, Thatte RL. Release of oral submucous fibrosis and reconstruction using superficial temporal fascia flap and split skin graft- a new technique. Br J Plast Surg 2005;58:1055-60.
3. Laskin DM. Oral and Maxillofacial Surgery. Vol. 2. Missouri: Mosby; 2003.
4. Vasconcelos BC, Porto GG, Bessa-Nogueira RV, Nascimento MM. Surgical treatment of temporomandibular joint ankylosis: Follow-up of 15 cases and literature review. Med Oral Patol Oral Cir Bucal 2009;14:E34-8.
5. Obuekwe O, Owotade F, Osaiyuwu O. Etiology and pattern of zygomatic complex fractures: A retrospective study. J Natl Med Assoc 2005;97:992-6.

Source of Support: Nil. Conflict of Interest: None declared.