

CASE REPORT***Use of Temporalis Fascia Flap in the treatment of Temporomandibular Joint Ankylosis : A Report of 2 Cases***Pronob Paul¹, Ankit Kumar², Pranshu Chauhan³, Nirzar Burande¹**Abstract**

Temporomandibular joint (TMJ) ankylosis is a disabling condition that does not allow the patient to take standard diet and normal speech. TMJ ankylosis results in fascial abnormalities. It also affects facial and mandibular growth, oral hygiene and compromises the airway. Restoration of normal function and jaw movements in patients with temporomandibular joint ankylosis has been a challenge. Various techniques have been provided for its treatment, but the results have been variable. The clinical report here describes the surgical outcome of interpositional arthroplasty with temporalis fascia who underwent the procedure. The aim of the surgical treatment was to remove the ankylotic part, re-establish the joint function and prevent re-ankylosis.

Key words: **Ankylosis, TMJ, arthroplasty****Introduction**

Ankylosis of the temporomandibular joint is most commonly associated with trauma (31% to 98% of cases), local or systemic infection (10% to 49%), or systemic disease (10%). It may be classified by a combination of location (intra- or extra-articular), type of tissue involved (bony, fibro-osseous), and extent of fusion (complete, incomplete). Temporomandibular joint ankylosis during early childhood may lead to disturbances in growth and facial asymmetry and to serious difficulties in eating and breathing during sleep. It also causes difficulty in speech and poor oral hygiene. The goal of managing such a patient should be to establish movement, function in the jaw, prevent relapse, restore appearance, and achieve normal growth and occlusion in the child. Management of such patients is by gap arthroplasty with interpositional grafting. Different interposition grafts have been used, such as the temporomandibular meniscus, temporalis muscle/fascia, fascia lata, skin, auricular cartilage, fat, cadaveric dura mater (not to be used because of a risk of Creutzfeldt-Jakob

disease), alloplastic materials, and xenografts. Flaps of the temporalis muscle and/or fascia were first described by Yolovine in 1898, and first used by Murphy in 1914 for surgery of the temporomandibular joint. The present study evaluated the efficacy of the temporalis fascia as an interpositional arthroplasty in the treatment of temporomandibular joint ankylosis in 2 patients.

Case Report :

Two patients of 15 years, and 16 years came to our department with abnormal facial appearance and reduced mouth opening since 2 years and 6 years respectively. There was no significant medical history or any deleterious habit. Both the patients presented with a history of fall from height 2 years and 6 years back respectively. They had complained from swelling and pain near the ear, treated by analgesics, gradually subsided and neglected. This limitation affected on feeding and had an impact on the health of the child seeking for management became mandatory.

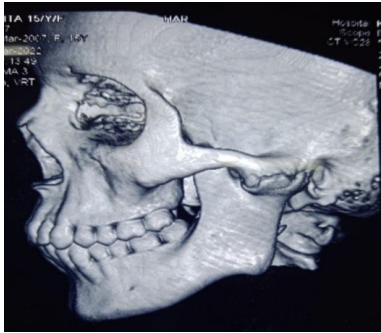
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**Case -1**



Pre-operative 3D Reconstruction Case-1



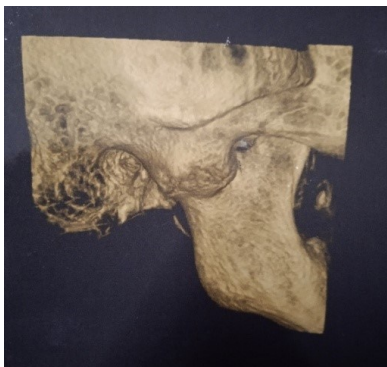
Pre-operative mouth opening (Case 2)



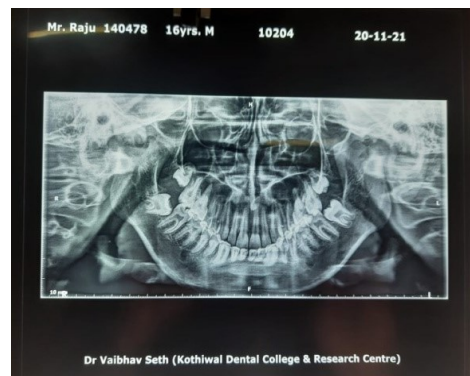
Case -2



Osteoarthrectomy using Temporalis flap



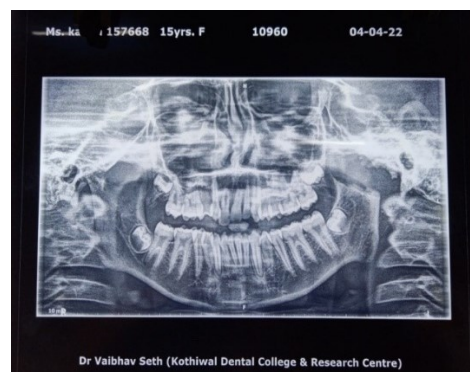
Pre-operative CBCT Case 2



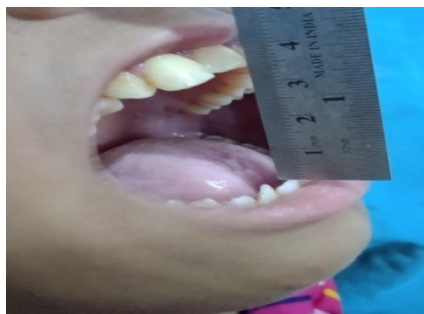
Post-operative OPG (Case 1)



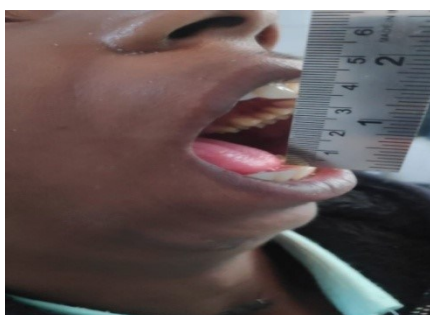
Pre-operative mouth opening (Case 1)



Post-operative OPG (Case 2)



Post-operative mouth opening (Case 1)



Post-operative mouth opening (Case 2)

Patient	Age	Gender	Etiology	Joint involved	MIO (Preoperative)	MIO (Last follow up after Surgery)	Coronoidectomy	Interpositional material	Weakness of Temporal branch of facial nerve	Duration of follow up
Case 1	15	Female	Trauma	Left	4 mm	35 mm	Yes	TF	No	1 year
Case 2	16	Male	Trauma	Both right and left	1 mm	34 mm	No	TF	No	1 year

Discussion

The high recurrence rate and the technical difficulties involved in the TMJ surgery makes it a challenging task for the surgeon. One of the surgical procedure is gap arthroplasty without interposition. Arthroplasty without interposition requires a gap of 10–20 mm. Topazian reported a recurrence rate of 53% for gap arthroplasty without interposition.

Gap arthroplasty is not only a relatively simple procedure with short-operating time but also has disadvantages such as creation of pseudo articulation with a short ramus and an increased risk of reankylosis.

Hence, interpositional gap arthroplasty is preferable. The main function of an interpositional material is to eliminate contact between two bony surfaces of the joint and avoid recurrence. Moss and Salantijn in 1969 pointed out that the muscular matrix around the mandible may affect the results of the treatment. Early treatment will restore mandibular mobility and subsequently improve facial growth and remodeling to reduce the possibility of the future facial asymmetry or retrognathia.

Various interpositioning materials have been proposed and used, but none has proved to be an ideal one. In the present review, we have evaluated surgical results of 2 patients, one of unilateral, and one of Bilateral TMJ ankylosis. Temporalis fascia was used as an interpositional material.

The flap is based on middle temporal artery which is a branch of superficial temporal artery, and we found the following advantages. Autologous nature; therefore least immunoreactive.

Proximity to the joint, enabling excellent mobility and coverage of the arthroplasty gap, minimal donor site morbidity both cosmetically and functionally

- Minimal damage to the temporal branch of the facial nerve
- Good resilience and blood supply
- Hollowing in the temporal region is not evident
- Minimal intraoperative blood loss
- Low degree of friction and good positional stability.

Although studies have shown that temporalis fascia lacks bulk, we found excellent long-term results for a follow-up period of 1 year with almost no recurrence. The surgical protocol followed was the one proposed by Kaban, 1990 which included ankylotic mass resection, ipsilateral coronoidectomy, interposition of temporalis fascia, early mobilization with aggressive physiotherapy.

Long-standing ankylosis may result in temporalis muscle atrophy and fibrosis. Ken *et al.* and Guralnick and Kaban recommended ipsilateral coronoidectomy to enhance intraoperative interincisal opening.

Early active and long-term physiotherapy in the form of jaw exercises and a long-term follow-up is of greatest importance to prevent reankylosis. Our experience with the temporalis fascia flap used as an interpositioning material in the surgical management of TMJ ankylosis produced good results in mouth opening, jaw function, and prevention of recurrence. In addition, temporalis fascia remains biologically viable and serves as a satisfactory TMJ lining.

References :

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