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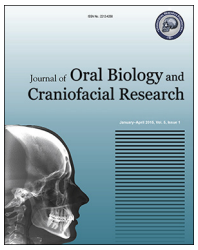

Original Article

Silicone vs temporalis fascia interposition in TMJ ankylosis: A comparison

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ABSTRACT

Objective: Temporomandibular joint ankylosis (TMJa) is a distressing condition, but can be surgically managed by gap or interpositional arthroplasty, with an aim to restore joint function and prevent re-ankylosis. The aim of this paper is to compare two interposition materials used in management of TMJ ankylosis.

Methods: 15 patients with TMJa were randomly allocated to two groups: group A ($n = 6$), interposition material used was medical-grade silicon elastomer, and group B ($n = 9$) where the interposition material used was temporalis fascia. Patients were followed up at regular intervals of 1 and 2 weeks, 1 month, 3 months, and 6 months and were assessed on following parameters: pain by VAS Scale, maximal mouth opening (MMO), implant rejection, and recurrence.

Results: The results showed a loss of 4.6% and 7.9% in maximal interincisal mouth opening at 3rd and 6th months in Group A while Group B had a mean loss of 9% and 10% at 3rd and 6th months respectively without any significant difference. None of our cases showed recurrence or implant rejection.

Conclusion: We conclude that silicone is comparable to temporalis fascia in terms of stability, surgical ease, and adaptability. It not only restores the function of mandible and ensures good maximum interincisal opening but also maintains the vertical ramal height. Also, it requires less operating time and is easy to handle but is not economical. It might be an effective way to restore function and prevent re-ankylosis.

1. Introduction

Temporomandibular joint is a ginglymoarthroidial joint with both translational and rotational capabilities. The internal arrangement and the architecture of this joint allows this complex motion. Temporomandibular joint ankylosis (TMJa) is a very distressing structural condition that denies the benefit of a normal diet and opportunities in careers that require normal speech ability. It also causes severe facial disfigurement that aggravates psychological stress. TMJa, if developed during early childhood, may lead to serious difficulties in

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eating and breathing during sleep, and disturbances in growth, causing facial asymmetry. TMJa may be caused by various factors, including trauma, systemic and local inflammatory conditions, or neoplasm in the joint.

Management of TMJa is mainly through surgical intervention: resection of ankylosed bone, restoration of form and function, and prevention of recurrence.[1,2] A variety of interposition materials have been used, including temporalis muscle and fascia, dermis, auricular cartilage, fascia lata, fat, lyo-dura, silastic, silicone, and various metals. Walker was the first to describe the use of silicone in surgery of ankylosis.[3] The autogenous materials are known to cause donor site morbidity and have an unpredictable resorption rate. On the other hand, artificial materials do not cause a donor site morbidity but carry a higher risk of infection and extrusion.

2. Material and methods

This study comprised 15 patients presenting with TMJa, who reported to the Outpatient Department of Oral & Maxillofacial Surgery, King George's University of Dental Sciences, Lucknow. The patients were selected randomly regardless of age, sex, and socio-economic status. A detailed preoperative assessment comprising a detailed history, a thorough clinical assessment, and radiological and hematological investigations was carried out. Written informed consent was taken from all patients. Patients were randomly divided into two groups:

Group A: Interposition material used was medical-grade silicon elastomer (6 patients). The silicone piece used was taken from a silicone block thoroughly brushed with a clean, soft sponge or soft bristled brush in a hot water soap solution to remove skin oils deposited during handling and possible surface contaminants. The piece was then rinsed copiously in hot water followed by a thorough rinse in distilled water or normal saline (Fig. 1). Silicon block was then wrapped in a piece of gauze and kept in a perforated stainless steel autoclavable box and autoclaved.

Group B: Interposition material used was temporalis fascia (9 patients). In all cases, access to the temporomandibular joint was accomplished via the Al Kayat Bramley incision. A rosehead bur, chisel, and mallet or the oscillating saw, AO Stryker

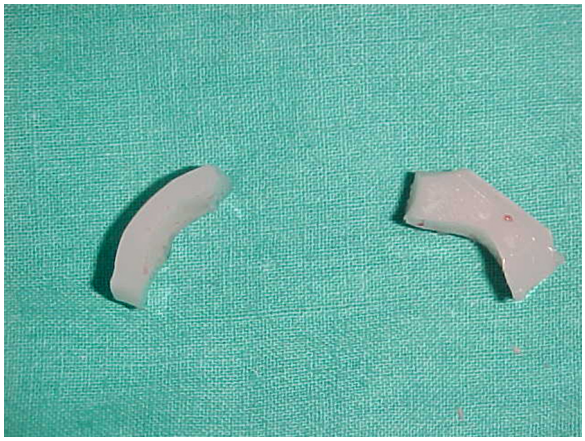

Fig. 1 – Silicone.

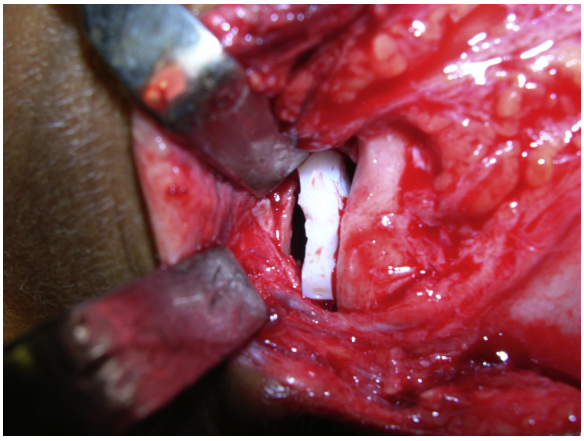

Fig. 2 – Silicone interposed.

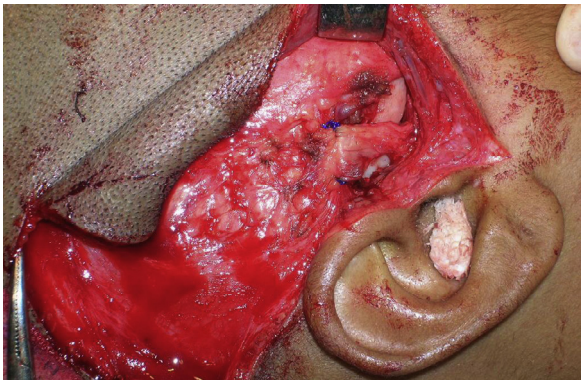

Fig. 3 – Temporalis fascia interposed.

command series, were used to perform osteoarthectomy with creation of 1–2 cm of gap. Care was taken to avoid injury to the internal maxillary artery, branches of the facial nerve, and auriculotemporal nerve. Following osteoarthectomy, interposition of the graft was done. In group A, 1 × 1 cm silicon piece with approximately 5 mm thickness was placed in the gap and fixed with 3–0 prolene (Fig. 2), while in Group B temporalis fascia was interposed. A balloon-shaped incision, approximately 3 × 2 cm, was made on the temporalis fascia (Fig. 3). This was then reflected with the help of Molt's periosteal elevator/Howarth periosteal elevator and interposed in the gap and fixed with 3–0 prolene suture. Layered closure was done. A suction drain was placed and a pressure dressing was given.

One-day post-interpositional arthroplasty, aggressive physiotherapy was advocated to all, irrespective of their group. Patients were followed up at regular intervals of 1 week, 2 weeks, 1 month, 3 months, and 6 months and were assessed on following parameters: pain by VAS Scale, maximal mouth opening (MMO), implant rejection, and recurrence. Data were statistically analyzed using SPSS system.

3. Results

The present study comprised of 15 cases; out of these, 6 cases with total of 10 Joints were operated using silicone as the