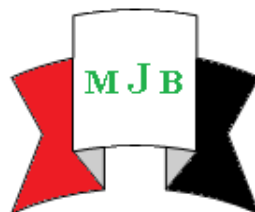


The use of Alloplastic Acrylic Subperiosteal Implant to Restore the Facial Symmetry in Post Traumatic Condylar Hyperplasia Patients

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Abstract

Post traumatic condylar Hyperplasia which is a rare documented condition results in facial asymmetry, condyle, ramus overgrowth and malocclusion of the teeth. Osteotomies together with bilateral sagittal mandibular osteotomies are the treatment of choice, to restore the facial symmetry and the malocclusion of the teeth.

Alloplastic sub periosteal acrylic mandible which is an inert material being used to restore the facial symmetry as an alternative method to the osteotomies in 12 patients who were contraindicated medically to the extensive osteotomies surgery, or refused such surgery, given a good permanent postoperative facial symmetry.

Keywords: Facial asymmetry, Condylar hyperplasia, Condylar Trauma

الخلاصة

في الهايبر بليزيا يتزايد العدد الكلي للخلايا نتيجة لزيادة النشاط أو التحفيز، وعندما يتم إزالته، تعود الأنسجة إلى وضعها الطبيعي. واحانا لا ترجع الى الوضع الطبيعي نتيجة انحطاطات ثانوية تحدث فيها. وهي حالات نادرة تحدث نتيجة صدمة اوظربة على عنق الفك الاسفل بدون ان تسبب فيه اي كسر وغالبا ماتكون هذه الصدمة على الناحية الاخرى من عنق الفك الاسفل مسببة تشوهات في عنق الفك مع تشوه الفك الاسفل في الجهة الاخرى من الصدمة. تتم معالجة غالبية هؤلاء المرضى بواسطة عمليات جراحية في الفكين او ترقيع عظم الفك بعظم من المريض نفسه (من عظم الحوض او الضلع) ان بعض المرضى لا يتحملون مثل العمليات الجراحية او ترقيع عظم الفك لسوء حالتهم الصحية او لرفضهم العمليات الجراحية او ترقيع عظم الفك الاسفل . وقد تم علاج ١٢ مريضا لم يتحملوا طبيا العلاج الجراحي او رفضوه . تم تصحيح تشوهات الفك الاسفل عندهم بواسطة مواد عاجية مصنعة متطورة وخاملة , اعطت نتائج دائمية جيدة .

Introduction

Hyperplasia which is increasing in the total number of the cells due to increased activity which exist only for so long as that activity or the stimulus is applied, when it is removed, the tissue returns to normal.

A secondary structural alteration in the general architecture of the condylar hyperplasia due to a accompanied degeneration may render a complete return to normal impossible [1]. Mandibular overgrowth and asymmetry due to post-traumatic condylar hyperplasia was first described by Lund in Denmark 1974 in a cephalometric

study of mandibular growth following condylar fractures [8,12,13]. Mandibular asymmetry following condylar injury is poorly documented as a cause of a facial asymmetry [5].

All patients who developed unilateral mandibular overgrowth secondary to condylar hyperplasia had a history of trauma to the condyle, some patients had a clearly documented condylar fracture, but on the opposite side of the deformity [11]. Other patients had a normal mandible prior to dislocating T.M.J injury [9], some other patient's injury occurred over two decades prior to presentation

and was documented only by history and had possibly a subclinical fracture.

All patients are adult and the deformities had resulted from a non-fracture injury of the condyle [7]. The prominent features include enlarged mandibular condyle, elongated condylar neck, outward bowing and downward growth of the body and ramus of the mandible on the affected side, causing fullness of the face on that side and flattening of the face on the contralateral side (Figure, 1).

Unilateral condylar hyperplasia must be differentiated from other states of lateral overgrowth of mandible like hemifacial hypertrophy, which is unilateral enlargement of all hard and soft tissues of the face, or chondroma and osteochondroma which produce similar symptoms and signs, but they grow more rapidly and may cause greater asymmetric condylar enlargement.

Material and Methods

Most cases of deformities due to post traumatic condylar hyperplasia has been treated by mandibular osteotomies together with lateral sagittal mandibular osteotomies which are comprehensive surgical plan which correct the facial deformed and the malocclusion of teeth, the treatment of choice.

Alloplastic sub periosteal acrylic implant being used to restore the symmetry of the face in 12 poor general health patients who were contraindicated medically to an extensive osteotomy surgery. Under general anesthesia, through an incision at the lower border of the mandible (to avoid a visible scar), (Figure-2) (Figure, 3) a surgical tunnel created by dissection (avoiding mental nerve injuries) on the lateral surface of the normal side of the mandible and the ascending ramus which look defected side. The surgical tunnel enlarged enough to accommodate the sub periosteal acrylic mandible (see Figure, 4) the sub periosteal acrylic implant then inserted under the periosteum through the surgical tunnel on the lateral surface of the mandible and the ascending ramus of

the same side, posterior to the second premolar, and fixed by (0.5 mm stainless steel) wires to the lower border of the mandible see (Figure, 5) to prevent any possible movement of the acrylic mandible (migration) which may change the post-operative aesthetic appearance of the patient.

The wound closed in layers, systemic antibiotic given for five days post operatively as a prophylactic measure against infections. This surgery gives good aesthetic result (Figure, 6) with a less trauma to the patient and a less time consuming to the surgeon in the operating theater. The malocclusion of the teeth, then corrected by a conservative methods, such as orthodontics, crowns and bridges or partial denture appliances.

Results

Osteotomies and bilateral sagittal mandibular osteotomies which are comprehensive surgical plan to correct the facial deformity together with the malocclusion of the teeth are the treatment of choice to restore the facial symmetry.

The acrylic sub periosteal implant being used to restore the facial symmetry in post-traumatic condylar hyperplasia, in 12 patients who are medically contraindicated to the extensive osteotomies surgery and in patients who refused such surgery, gave a good permanent aesthetic contour of the facial deformity. Without any clinical changes in the patient's appearance post-operatively.

The acrylic sub periosteal implant is recommended to all such patients.

Discussion

Post traumatic condylar hyperplasia, which is a rare documented condition results in facial asymmetry, condyle and ramus overgrowth and malocclusion. Alloplastic acrylic sub periosteal implant being used to restore the facial symmetry of such patients with a good post-

operative permanent aesthetic appearance.

1. The acrylic implant is a cheap, inert material, easy constructed to the required shape and size in the local. (At which acrylic dentures are made), it can be curved and shaped with a high speed bur to permit fitting the implant with minimum additional shaping during surgery, so it is a less time consuming to the surgeon in the operating theater than the comprehensive surgical osteotomies [2,3,4,6,10,14].

2. It is not rejected by patient's tissues

3. No dimensional changes, the acrylic mandible retains its shape and thickness post-operative

4. No resorption due to tissues pressure when sutured under tension

5. Made of modified transparent acrylic material which is light in weight

6. Can be applied as a substitute to bone graft with a less trauma to the patient.

The sub periosteal acrylic implant is indicated for patients who are in a poor general health and are contraindicated to the extensive osteotomies surgery and also in patients who refuse such surgery.

Post-Operative Follow Up

Ten years post-operatively (clinical) follow up study of 12 patients, showed that the acrylic mandible retained its shape and thickness.

The clinical appearance of the 12 patients, being treated by acrylic sub periosteal implant, followed post-operative, showed a good unchanged permanent aesthetic appearance.

The acrylic is radiolucent material, so all the post-operative X-rays show nothing of the Alloplastic acrylic implant (only the stainless steel wires are seen) and the same preoperative and the post-operative mandible seen in X-rays.



Figure 1 Facial asymmetry



Figure 2 Patient under G.A



Figure 3 A sub mandibular incision



Figure 4 Acrylic alloplastic implant



Figure 5 The implant Introduced and fixed by 0.5 mm stainless steel wires



Figure 6 Pre and post-operative pictures, show the final appearance of the patient with good aesthetic results

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