THE USE OF PROPLAST AS SUBPERIOSTEAL IMPLANTS TO COMPENSATE THE DEFECTS IN FACIAL BONES

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Abstract

The use of proplast which is a new material used specially for cosmetic restoration. It has been designed especially for surgical implant, it is ultra porous to insure rapid stabilization of the implant by tissue ingrowths, so reduces the surgery time in the operative theater as it does not need immobilization of the bones as with other subperiosteal implants, it is not expensive material, can be readily molded to permit fitting the lost bones with minimal additional shaping during surgery with a sharp scalpel

Introduction

The subperiosteal implant may be a bone graft (1) taken from the same patient to compensate a defect in the jaw bones due to trauma or the pathological cause, such as cyst.

Grafts other than bones may be used as Titanium, Vatanium, chrome cobalt (2) and proplast
Proplast is a new material used especially for cosmetic restoration. It has been designed especially for surgical implantation. It is ultra porous (70-90)% porous by volume. Which ensure rapid stabilization of the implant by tissue ingrowth. It is easily carved with a sharp scalpel or it may be shaped with a high speed bur to permit fitting and selection of most suitable implant with minimal additional shaping during surgery.

Materials and Methods

Proplast subperiosteal implants were used in three of my cases. In the first case it was used to restore the contour of a chin with bony loss due to a shell injury as a mentoplasty or a genioplasty. The surgical operation was performed under general anesthesia and sedation. After pre-operation steps local anesthesia with epinephrine injected in the symphysis area for homeostasis.

A horizontal incision about one inch long was made through the mucosa midway between the depth of the vestibule and the wet line of the lower lip. The body of the mentalis muscle sharply incised immediately above the most prominent aspect of the symphysis. The incision is carried obliquely posterior to the inferior border below the cuspид-bicuspid roots the branches of the mental nerves are protected. The intact soft tissues in this area prevent slippage or superior movement of the implant towards the vestibule. The periosteum is stripped over the symphysis and beneath the inferior border to the bicuspid reign to develop adequate pocket size to the implant. The sub-mental tissues are then closed over the implant without tension with resorbable suture placed through the muscle and the periosteum on the lip side to stabilize the implant subperiosteally below the
pogonion and reduce the bone resorption. Wire fixation to the inferior border was not necessary. Then two layers closure through the muscle and the mucosa with interrupted sutures closely approximated was done to avoid any post-operative infection.

As far as post-operative care is concerned pressure with a tap over gauze placed horizontally along the labial fold and vertically beneath the chin for 5 days helped to ensure the final position of the implants and prevented hematoma formation. A systemic antibiotic was given for week post-operatively.

In the second case I performed the operation by extra-oral approach. A curved incision was made through the skin and subcutaneous fat in the sub mental region parallel to the inferior border of the symphysis. The flap was undermined to the outer aspect of the inferior border where the muscle and the periosteum are incised and reflected to create the subperiosteal pocket over the symphysis proper to the correct size of the implant.

The implant is then centered over the pogonion. For immediate post-operative stabilization of the implant a resorabable suture is used and wound closed in layers, extra oral pressure by tape over gauze is used over the area to insure the subperiosteal implant in position and also to prevent hematoma formation.

Systemic antibiotics were given for one week post-operatively. Fig(1-4). The third case was the implantation of zygomatic bone this implant can be inserted through an intra-oral approach. The extra-oral approach was used in this case, the implant was inserted through a corona) incision under general anesthesia. The soft tissue infiltrated
with adrenaline solution for homeostasis following a corona) incision the dissection was carried down the lateral orbital rim to the lower border of the zygoma was carried just inferior to the to the inferior orbital rim angulating below the infra orbital nerve close to the pyriform aperture medially and to the soft tissue just above the upper buccal sulcus inferiorly.

Laterally the dissection was carried out on the zygomatic arch.

The implant about 6mm . thick is then inserted with the wide end parallelizing the naso-labial fold the small end extending out to zygomatic arch. There was no need for fixation suture and there was no tension on the implant when suturing, antibiotic given immediately prior to the surgery and continued for 7 days following surgery. Fig(5-10).

**Discussion**

The use of proplast subperiosteal implant to compensate the defect in facial bones due to trauma or pathological cases such as cyst, it causes less trauma to the patient as in the case of bone graft taken from the same patient and also it is less time consuming in the operative theater as compared with other subperiosteal implant such Titanium , Vatanium or chrome cobalt which immobilization to the bones.

**Conclusion**

The proplast is good reasonably good , cheap , easily to use and fits nicely, with excellent prognosis. Nine year study showed a 95% success rate for proplast zygomatic implant, the same clinical follow
up study showed proplast chin implants retain thickness with only minor position migration.

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4. proplast is registered trademark of vitek, inc Houston, Texas U.S.A covered by U.S. patent 3,992,725 and 4,129,470 corresponding foreign patients and pending applications

My previous work as:

1. Management of facial trauma
2. Bone graft used
3. The use of chrome cobalt as implant in trauma
4. The proplast as cosmetic restoration in facial trauma
استعمال مادة Prop last في ترقيق عظام الوجه والفكين

إن استعمال هذه المادة في ترقيق العظام والأجزاء الأخرى من الوجه هي مادة حديثة صنعت خصيصًا
للجراحة التجميلية، وهذه المادة المسامية تسهل تثبيت الجزء المضاف إلى باقي الأجزاء بنمو الألياف
من الأجزاء المجاورة إلى داخل هذه المادة المصنعة، إنها تختصر وقت العملية حيث لا تحتاج إلى عملية
لتثبيتها في العظام الموجودة أصلاً، وهذه المادة رخصة الثمن وتمكن تعقيمها وزراعةها بدل الأجزاء
المفقودة من الوجه كما إن هذه المادة يمكن قطعها وبما يتلاحم الجزء المفقود من العظام المراد تعويضه
ويناسبها وقطعها بواسطة المشرط الجراحي إثناء العملية. كما إن هذه المادة تعتبر من المواد
الخاملة ولا يمكن رفضها من قبل جسم المريض كما إنها من القوة بحيث تتتحمل الضغط ولا تسودها
الضمور مع مرور الوقت، وكانت قد استعملت لمدة عشر سنوات من دون تغيير في حجمها أو مثانتها
وفي البحث تم إجراء العديد من العمليات الجراحية لتعويض الأجزاء المفقودة من عظام الوجه بهذه المادة
الخاملة من حيث إعادة المظهر إلى الوضع الطبيعي قبل فقدان ذلك الجزء من العظم نتيجة الحوادث
والعلاقات النارية التي تشهيه المظهر.

الدكتور
صابع محمد حسين