ORIGINAL ARTICLE

Filling the Gaps in Cleft Palate Surgery

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ABSTRACT

Back ground: The patients with orofacial clefts are prone to mid face hypoplasia. The surgery also contributes varying degree of fibrosis as stripping off of mucoperiosteal flaps produces ischemia. The raw area created heals by secondary intention adding element of contracture. In an attempt to promote blood supply to the raw areas and to decrease severity of fibrosis buccal pad fat is brought as a pedicled flap. The articles describes the technique and results of the series.

Material and methods: This is a descriptive, observational study done over three and a half years in which forty cases of cleft palate are managed in two groups. In group A (20 cases) the raw area was packed with synthetic hemostatic gel or gauze impregnated with tincture benzoin Co. All the patients of group B (20 cases) received a flap of buccal fat pad to cover the raw area. Previously operated patients were excluded from the study. Different parameters as regards age, sex and complications are tabulated.

Results: Majority of the patients were females (60% in group A Vs 50% Group B). Most of the patients were below three years (65% in each group) but one (5%) in group A and 2(10%) in group B were older than five years. The incidence of post-op bleeding is same (5%) in both group. One patient (5%) in group A had to be resuscitated for respiratory arrest due to dislodgement of gauze pack. Two (10%) patients in group B had protrusion of fat post operatively with one (5%) requiring repeat surgery to remove the excess fat. Four patients (20%) in group A had minor fistulae as compared to two (10%) in group B. While all the fistulae healed in group B two (10%) patients in group A needed repeat surgery. All the patients were followed up for 06 months with group B showing better results.

Conclusion: The buccal fat pad is ideally located vascularilized tissue for palatoplasty. Though buccal fat pad is used extensively in reconstructive procedures no attempt has been made to define its role in primary palatal surgery. To promote blood supply to the raw area of palatal surgery buccal fat pad can play a major role thus minimizing the complication of mid face hypoplasia.

Key words: Cleft lip, cleft palate, congenital craniofacial disorders

INTRODUCTION

Repair of cleft palate entails mobilization of muco periotoneal flaps from either side of the cleft. The procedure almost always leaves raw area behind which should heal at the earliest so as to minimize fibrosis and interference in functional results. Whenever possible the edges of raw area are stitched back to restore mucosal continuity. Most of the times this is packed with some synthetic haemostatic gel or tincture benzoin co impregnated gauze with the attendant risks of dislodgement (causing respiratory embarrassment) and secondary infection promoting ultimate fibrosis. The fibrosis also predisposes the patient to mid facial hypoplasia which is difficult to treat and leaves behind a lifelong stigma evident to the on lookers. To obviate these risks we have utilized vascular, pedicled buccal pad of fat to fill the gap in our patient with gratifying results. The study will describe the technique of the procedure as well as the results in our series with special emphasis on the rate of fistula formation.

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MATERIAL & METHODS

Over a period of two years twenty cases of cleft palate were operated and buccal pad of fat was utilized as filler. Previously the same surgeon had used synthetic haemostatic gel or tincture Benzoine Co impregnated gauze randomly in twenty cases done during one and half year period. The study was started at King Edward Medical University and continued at Services Institute of Medical Sciences Lahore. All the primary patients of cleft palate presenting in outpatient department were included in the study. Previously operated patients were excluded from the study.

Technique: The standard palatoplasty incisions are utilized. The bloodless space between tensor veli palatine and medial pterygoid muscle is entered. The buccal pad of fat is teased into the wound from a

space between buccinators and masseter muscles. It presents into wound as a frond of yellowish vascularized pad of fat. No attempt is made to pull at the fat. Only gentle dissection of surgical planes will bring part of the extension of the fat into the oral cavity. The exposed fat is left as such and rest of the procedure is completed. After stitching the flaps in layers the raw area is filled with buccal pad of fat which is held in place with few stitches of 4/0 polyglycolic acid suture. Initially about 10-12 minutes were required to complete the procedure on either side which has gradually been reduced to a less than ten minutes addition to the operation time.

Anatomy of Buccal pad of fat: The buccal fat pad also called Bichat's fat pad is a specialized form of facial fat which is similar to orbital fat in appearance and consistency. This has to be differentiated from malar pad of fat which is a subcutaneous structure. It lines the masticatory space between Masseter and Buccinator muscles[1]. It has been described as consisting of 1) body 2) buccal extension 3) temporal extension and pterygoid extension[2]. The body of buccal fat pad lies superior to the parotid duct, below which buccal extension is encountered. It receives its blood supply from Maxillary Artery branches. The buccal pad of fat is used extensively in plastic and reconstructive surgery but its use as a filler in cleft palate surgery is not reported as such[3, 4]

RESULTS

The study was conducted in two groups. In group A the raw area was filled with synthetic hemostatic gel or gauze soaked in tincture Benzoine Co. In group B all the patients received baccal fat pad as filler and no synthetic material was utilized. Twelve patients (60%) in group A were female as compared to ten (50%) in group B Table I. The age distribution was comparable in two groups. While most of the patients were below three years of age (65% in each group) we also had patients older than five years in both groups (Group A one (5%) Vs Group B Two (10%) Table No II. All the patients underwent push back palatoplasty and were followed up for next six month for complication as well as functional results. Complications are summarized in table No.III. The incidence of post-op bleeding in both groups is same (one case (5%). In two cases (10%) of group B protrusion of fat was encountered. One case progressively settled down in size and was re-epithelialized in two weeks while the other case had to be operated so as to snip off the fat. Both were early case of the series and reflect upon the inexperience of the surgeon. There is a gentle learning curve of the procedure and no much problem has been encountered in the last fourteen cases. One case (5%) in group A had dislodgement of the pack of tincture Benzoine Co soaked gauze and had to be resuscitated for respiratory arrest. Infect this was the case prompted the thought of utilization of some native tissue to fill the raw area and prevent life threatening complication. Four (20%) cases in group A had minor fistulas (pinhead to 3mm) as compared to two (10%) in group B. All the fistulas progressively healed in group B while two cases (10%) in group A underwent redo surgery after six months. All the case was followed up for six months and ultimate results as regards speech were found more gratifying in group B.

Table I: Sex Distribution

Sex	Name of Patients	
	Group A	Group B
Female	12 (60%)	10 (50%)
Male	08 (40%)	10 (50%)

Table II: Age Distribution

Age (Yrs)	No. of Patients	
	Group A	Group B
1-2 yrs	06 (30%)	05 (25%)
2-3 yrs	07 (35%)	08 (40%)
3-4 yrs	04 (20%)	03 (15%)
4-5 yrs	02 (10%)	02 (10%)
5-7 yrs	01 (5%)	02 (10%)

Table III: Complications

Complications	No. of Patients	
	Group A	Group B
Post op Bleeding	01(5%)	01(5%)
Dislodgement of Pack	01(5%)	-
Protrusion of fat	-	2*(5%)
Minor Palatal fistula (No surgery needed)	04(20%)	2(10%)
Palatal fistula requiring surgery	02(10%)	-

*One patient needed snipping off of the protruding fat while the other settled after 02 weeks

DISCUSSION

Amongst the congenital craniofacial disorders, orofacial clefts are the most common. The rising incidence in Asian population can be partially blamed on maternal malnutrition & smoking[4,5,6] Great controversy still persists regarding timing and technique of palatoplasty. As the children with orofacial clefts are candidates for mid facial hypoplasia, multiple surgeries definitely increase the risk of the dreadful deformity. The growth of maxilla in hampered three dimensionally. The growth disturbance becomes evident in the dish-face appearance during the second decade of life, despite normal facies during early childhood[7]. Transverse

deficiencies in facial growth can often be corrected with orthodontic appliances (palatal expanders), whereas vertical or antero-posterior growth discrepancies must be corrected surgically[8]. The controversy will probably continue because of the divergent interests of various cleft teams. Meanwhile all the experts agree that the degree of fibrosis should be minimized. The stripping of periosteum during elevation of muco periosteal flaps interferes with inherent source of nutrition of palatal shelves of the maxillary bone. In addition surgical manipulation introduces variables degree of scar tissue amongst the intimately related structures around cleft palate. The end result is interference in the complex growth of developing tissues.

The literature is replete with discussion on timing and new techniques of platoplasty[9] but few articles address the raw areas created during mobilization of flaps. It is presumed that it will be dealt in a way so as to minimize fibrois. Most of the times it is packed with synthetic gel foam or tincture benzoin impregnrated gauze. The former is absorbed over a period of few days and the later has to be removed after 24-48 hours leaving behind raw area promoting granulation time which contracts to produce varying degree of scar. The pack can accidentally be dislodged resulting in life threatening complications as is evident in one (5%) patient in group A. If the gauze pack is stitched in place its removal demands general anesthesia in a crying uncooperative child.

With a grossly distorted patients to nurses ratio in our public hospitals the quality of post – op care leaves much to be desired. It is the duty of operating surgeon to minimize the risks involved in patient care. Utilization of buccal fat pad brings an indigenous living tissue to fill the gaps created during palateoplasty. This will eliminate the risk of dislodgement of a pack of gauze as well as promote healing by bringing in fresh vascular supply into a surgical wound. Buccal fat pad is a readily available vascular structure which can be molded into a variety of problems of reconstructive surgery. The author has utilized it for primary cleft palate surgery with minimum complications. Only one case needed snipping off of protruding fat. The extract time added to total surgical procedure can be minimized very easily with practice. But the few extra minutes spent can bring a healthy change in the ultimate outcome as regards fistula formation (10% in group Vs Nil in group B) as well as mitigating mid face hypoplasia.

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