Deepithelialized Mucosal-Submucosal Flaps to Correct the “Whistling Lip” Deformity

Many methods have been described for correction of the “whistling lip” deformity, a possible sequela of bilateral cleft lip repair. A technique is described that utilizes medially based deepithelialized mucosal-submucosal flaps to augment the central tubercle and to reduce lateral lip fullness. This technique is also useful for certain mucosal contour defects that follow unilateral cleft lip repair. Indications for applying this technique and its advantages, compared with other procedures, are described.

KEY WORDS: “whistling lip” deformity, deepithelialized mucosal flap, cleft lip, surgery, lip revision

The “whistling lip,” a deficiency of tissue in the median tubercle, may follow primary repair of bilateral cleft lip. This deformity has been attributed to the sole use of mucosa from prolabial vermillion and mucosa to form the central lip (Millard, 1977a, 1977b), and the failure to attain continuity of the orbicularis oris (Duffy, 1971; Puckett et al, 1980; Kai and Ohishi, 1985). A number of methods have been described for correction of the “whistling lip” deformity, including V-Y advancement of mucosa and submucosa (Robinson et al, 1970; Hogan and Converse, 1971); wide advancement of buccal mucosa (O’Connor et al, 1973); Z-plasties and other arrangements of local vermilion tissue (Crikelair and Hickey, 1957; Arons, 1971); free composite submucosal-muscle grafts (Guerrero-Santos, 1969; Chong and Winslow, 1971); tongue flap; sliding island flaps of orbicularis muscle and vermilion (Kapetansky, 1971; Juri et al, 1976); the Abbe flap (Abbe, 1898); and modifications of the latter technique (Cannon, 1941; Gillies and Millard, 1957; Millard, 1977b; Kawamoto, 1979; Holmstrom, 1987). With current techniques for bilateral cleft lip repair (Millard, 1977b; Mulliken, 1985), the “whistling lip” should be seen less frequently.

The purpose of this report is to present another method for the correction of deficient central mucosal contour, which is particularly applicable in a patient with excessive fullness of the lateral mucosal element.

TECHNIQUE

The “whistling lip” is characterized by inadequate fullness of the central upper lip with abnormal exposure of the central incisors when the lips are in repose (Fig. 1). There is often associated festooning of the lateral portions of the vermilion. To correct this deformity, we have used bilateral, medially based deepithelialized mucosal-submucosal flaps turned centrally to enlarge the medial tubercle and concomitantly to reduce the free margin of the lateral lip.

Two eccentric lenticular-shaped outlines are drawn in a transverse axis just inside the vermilion-mucosal junction of the lateral lip segments (Fig. 2). The flap should extend medially so that the bulge resulting from the turned flap is in the deficient tubercle. The outlined area is deepithelialized and medially based flaps of mucosa and submucosa are raised off the orbicularis oris (Fig. 3). A tunnel is dissected beneath the central vermilion, and the flaps are turned to fill in the median deficit with each flap secured by per-mucosal resorbable sutures (Fig. 4). The donor site in the lateral lip area is closed with an interrupted or running 5-0 chromic

FIGURE 1 Central lip deficiency following bilateral cleft lip repair. Note adequate vermilion band.
FIGURE 2 Bilateral mucosal flaps drawn inside vermilion-mucosal junction.

suture. Care must be taken to avoid a "dog-ear" at either end of the closure (Fig. 5); the scars are hidden inside the vermilion-mucosal border (Fig. 6). Typical results are shown of the use of this technique in a patient with bilateral cleft lip and palate (Fig. 7) and a patient with unilateral cleft lip and palate (Fig. 8). This technique has been successfully used in 12 patients with bilateral cleft lip and cleft palate and in five patients with unilateral vermilion-mucosa deficiency.

DISCUSSION

The technique described in this report invokes the time-honored principle of plastic surgery, espoused by Sir Harold Gillies and oft quoted by Millard: "Thou shalt never steal from Peter to pay Paul unless Peter can afford it" (Millard, 1977a). Thus, to construct successfully a full central tubercle with this method, there must be ample lateral lip mucosa.

The technique also presupposes complete orbicularis oris continuity. Many authors stress the importance of orbicularis oris construction in the correction of primary and secondary deformities, whether unilateral or bilateral (Randall et al., 1974; O'Neal et al., 1974; Puckett et al., 1980; Nicolau, 1983; Kai and Ohishi, 1985). In the absence of complete continuity of the orbicularis oris, unsightly bulges will occur in the lateral lip segments that accentuate the "whistling lip" deformity (Puckett et al., 1980), especially during animation.

The technique described in this report should not be used unless there is sufficient height of the central vermilion. If the vermilion band is inadequate and cutaneous lip revision is undertaken, vermilion tissue can be advanced from the lateral lip elements as the prolabium is narrowed (Mulliken, 1985). If, however, there is an absolute deficiency of the
Although other techniques for the correction of mucosal deficiency subsequent to cleft lip repair have certain advantages, they may also have certain undesirable sequelae. The vertical V-Y roll-down technique (Crike and Hickey, 1957) or Z-plasty rearrangement of central lip tissue (Arons, 1971) may expose the inner mucosa, thereby leaving a dried, discolored surface in the lower tubercle. This same problem can occur with medial advancement of large gingivolabial flaps (Hogan and Converse, 1971; O'Connor et al, 1973). The double V-Y advancement of vermilion-mucosal flaps, described by Robinson and colleagues (1970), results in multiple intersecting scars at the junction of the four flaps (Chong, 1971). Mucosal, as well as intramuscular, scarring is also a possible complication of the "double pendulum" flaps described by Kapetansky (1971) and modified by Juri and co-workers (1976). For a small "whistling lip" deformity, Millard (1977b) advocates V-Y mucosal roll-down combined with transportation of transverse subcutaneous or muscle flaps from each side to fill the central defect. Our method employs lateral mucosal-submucosal flaps, turned medially in a similar manner to that described by Millard, but without concomitant V-Y revision of the tubercle. Buried composite grafts of submu-
cossa-mucosa can be quite useful in filling minimal upper lip defects (Chong and Winslow, 1971); however, if the vermilion surface of the composite graft is exposed (Flanagin, 1956), scarring and a coarse surface may result (Millard, 1964).

**SUMMARY**

The “whistling lip” deformity remains an unsatisfactory sequela of bilateral, and sometimes unilateral, cleft lip repair. A simple, one-stage method to enlarge the median tubercle that utilizes medially based mucosal-submucosal flaps from the lateral lip elements has been described. This technique is especially indicated in the small to moderate medial deficit with concomitant fullness of the lateral lip elements. Orbicularis oris continuity and proper vermilion height are prerequisites.

**REFERENCES**


Commentary

Drs. Rodgers and Mulliken have provided us with a well written and clearly descriptive paper of a technique designed to resolve a particularly bothersome problem. The idea presented is attractive, and the results shown warrant serious consideration of this technique. The "whistling lip" deformity is caused by a lack of tissue, and the fact that the scar, which is not easily stretched, is in the area of the "whistling" deformity. One might therefore wonder whether the addition of a V-Y mucosal advancement (Millard, 1977) might further enhance the results and provide additional convexity in the center (tubercle) of the lip.

The pivot of the flaps in the procedure described by Rodgers and Mulliken is lateral to the "whistling" deformity. One might hypothetically expect small lateral "bumps" to occur unless deeper dissection were carried out (Kapetansky, 1974) to allow medial translocation of the flap's base.

However, it must be pointed out that my comments are based purely on hypothesis and conjecture. It is obvious that the procedure described by Rodgers and Mulliken must be further scrutinized and compared with other techniques that have been designed to resolve the same problem. At the very least, the authors must be commended for adding another procedure to our battery of operations for resolving one of the more nettlesome problems associated with cleft lip. The initial results are certainly encouraging, and I look forward to seeing additional reports on the application of this operation in the future.

REFERENCES


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