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COLUMELLA RECONSTRUCTION USING INTERNAL NASAL VESTIBULAR FLAPS

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The importance of the columella as an aesthetic entity in the composition of the face is easily underestimated and it is only when this tiny structure is destroyed by syphilis, infection or trauma that the tissue defect becomes glaringly obvious. The difficulty of reconstruction of this subtle aesthetic keystone has stimulated many elaborate operative techniques requiring multiple stages. The successful correction of loss of the lower septum and columella with a simple one-stage procedure is the justification for this short report.

CASE REPORTS

Case 1. An 8 year old Mexican boy was admitted to hospital with a history of severe infection of the nose at the age of 4, resulting in the formation of a large abscess and subsequent loss of the membranous septum and columella. He had been treated in Mexico by drainage of the abscess and the administration of antibiotics to control the infection, but the causal organism was unknown. The boy was in good health but according to the mother, the nasal deformity was affecting the child's social and psychological development.

On examination, the columella, membranous septum and $0{\cdot}4 \times 3$ cm of the cartilaginous septum was missing. On profile view the nasal tip was slightly depressed but otherwise both the nose tip and ala were normal (Fig. 1 A and B).

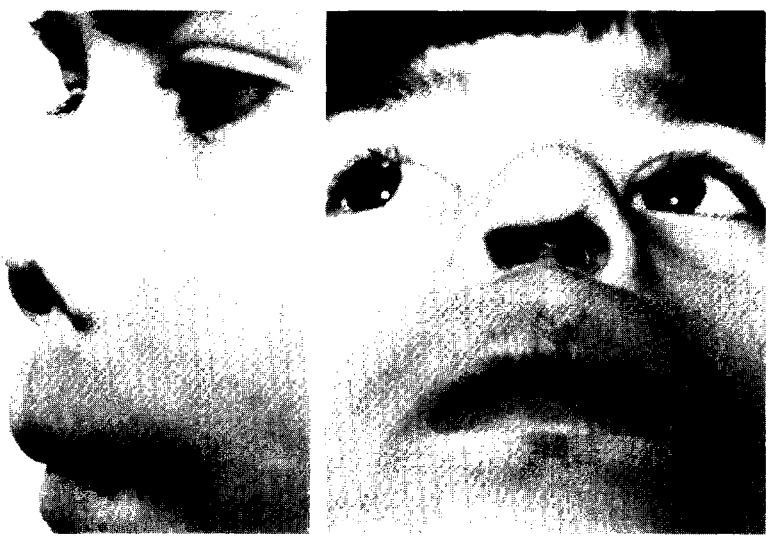

FIG. 1. A and B. Eight year old boy with destruction of the columella following a severe infection 4 years previously.

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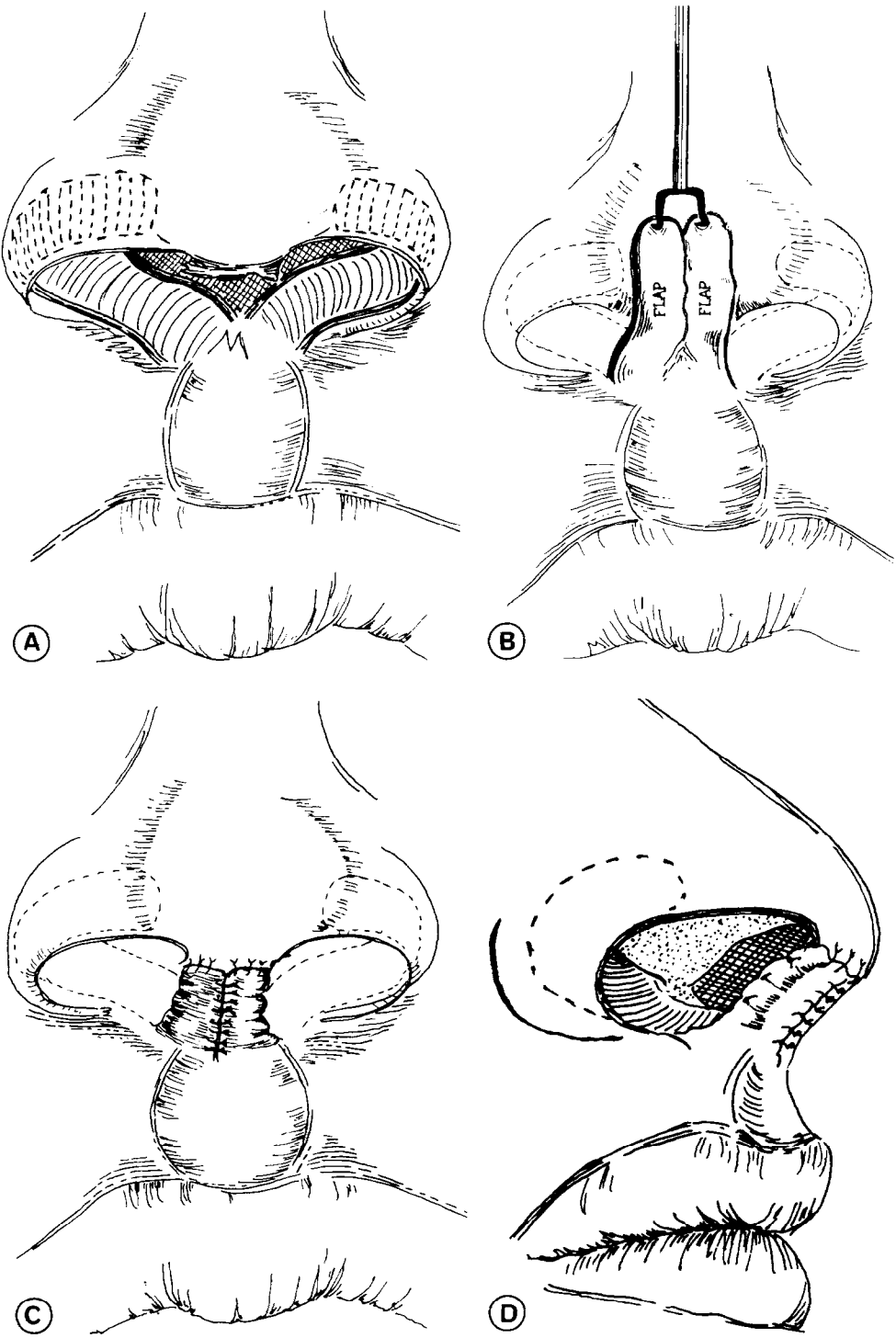
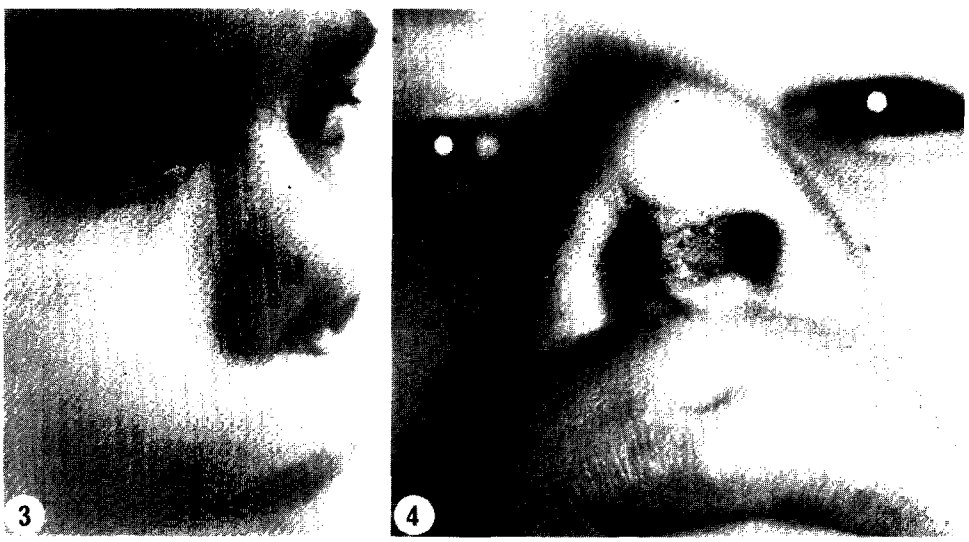


FIG. 2. A. The local flaps are based just above the philtrum and extend out along the nasal vestibule, stripping the mucosa from the alar cartilages. B. When transposed these flaps extend vertically to beyond the nasal tip. C. The flaps are sutured to the dissected nasal tip. D. On close inspection the "bucket-handle" effect can be seen but this is not readily recognised at conversational distances.

A one-stage columella reconstruction was undertaken under general anaesthesia. The nasal mucosa was infiltrated with 1 per cent xylocaine and 1:100,000 epinephrine to provide adequate haemostasis. Bilateral mucosal flaps based on the nasal floor just above the philtrum and extending around the nasal cupola were raised and rotated toward the midline to reconstruct the columella. The flaps were 6 mm in width and extended parallel to the alar rim for approximately 2 cm. The mucosa was elevated off the lower lateral cartilage. A small anteriorly based flap under the nasal tip was elevated which provided a raw surface into which the distal tips of the mucosal flaps were inserted. The flaps were sutured together with interrupted sutures of 5/0 vicryl and the nostrils were lightly packed with Vaseline gauze (Fig. 2, A, B, C, D). The postoperative result was excellent; both flaps survived completely and the deformity was corrected (Figs. 3 and 4).



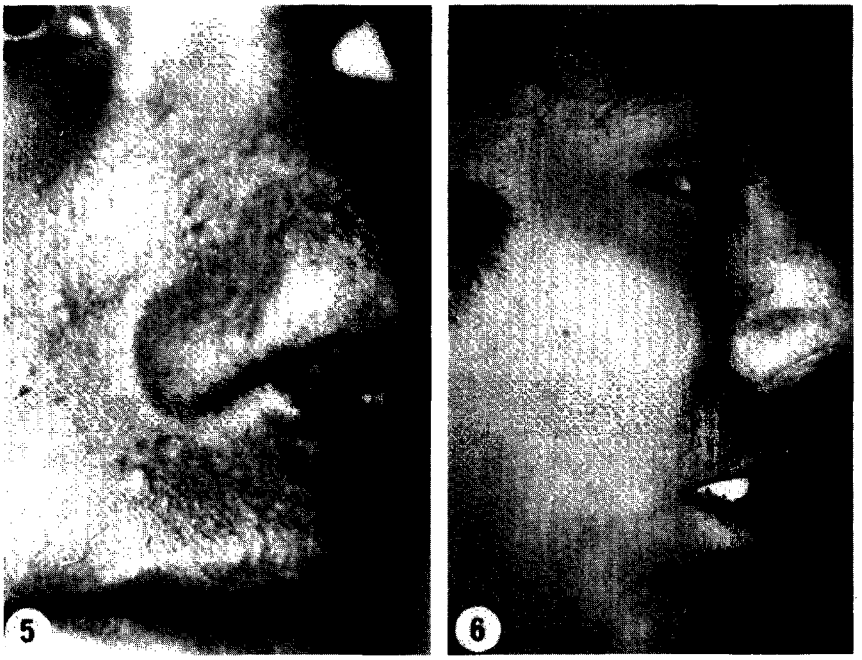
FIGS. 3 and 4. The patient (Case 1) one year after columella reconstruction using local flaps.

Case 2. A 17 year old boy had been born with a haemangioma of the columella extending onto the nasal tip. Several operations in early childhood to excise the lesion and control bleeding had left him with an absent columella and membranous septum (Fig. 4). He was treated in exactly the same way as the first patient. Two months after completion of the flap repair a dermal over-graft using preauricular skin was added to give a better colour match to the columella (Figs. 5 and 6).

DISCUSSION

Many complicated and multi-staged procedures have been advocated for columella reconstruction, notably those described by Gillies (1923), Ivy (1925), Kazanjian (1948), Cardoso (1958). Some of these operations required 7 or 8 stages (Paletta and Van Norman, 1962).

Various composite grafts from the ear and lip have been described but in the final analysis, these have been of most value in treating partial losses of the columella. Ferris Smith (1950) used the mucosa of the upper lip



FIGS. 5 and 6. Seveenteen year old boy (Case 2) after columella reconstruction using local flaps. A preauricular dermal overgraft to the newly reconstructed columella provided extra bulk and a better colour match.

combined with a split thickness skin graft to reconstruct the deficient columella but wound contracture and fibrosis spoiled the long term result.

Heanley (1955) used a frontal flap based on the superficial temporal artery and this was refined by Cardoso (1958) who used a median frontal flap tunneled subcutaneously to bring a pedicle to the columella. In 1964 Da Silva used a flap from the nasolabial fold transferred through the nasal mucosa passing between the alar and triangular cartilage in a three-staged procedure.

Snow and Harris (1968) described a centrally based upper lip flap combined with an adjacent nasolabial flap to reconstruct the columella in a one-stage procedure. The price paid was a hair-bearing columella and additional facial scars.

The method described in this paper eliminates the external additional facial scars which can be disfiguring particularly in a young person. The fact that the alar cartilage is left intact minimises the distortion caused by contraction as the nasal vestibule becomes re-epithelialised. However should vibrissae be transferred with the nasal flaps, resurfacing of the caudal edge of the reconstructed columella with a non-hair-bearing skin graft may be required.

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