Prosthetic treatment in cases of collapsing alae

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SUMMARY

The disadvantages of oral respiration are briefly discussed in this paper together with prosthetic treatment of collapsing alae. A simple method of obtaining an impression of the vestibule is suggested.

COLLAPSING alae is a condition which often causes considerable inconvenience to the patient as it impairs normal breathing. Very frequently the patient must resort to mouth breathing with all its disadvantages. Normal breathing through nose is physiological; the mucous membranes of the nose moisten and heat the air passing to the lungs. Similarly the nose acts as a filter removing harmful compounds from the inspired air, it also assists pulmonary ventilation and at the same time functions as an aid to the cardiovascular system as described by Cinelli (1941), Foman et al. (1950) and Foman et al. (1951).

From the odontological point of view nasal respiration is superior to oral breathing as the latter increases bacterial plaque formation on the surface of the teeth and adversely effects dental occlusion. Bacterial plaque formation can readily be shown by the application of disclosing solution to the teeth. Such plaque formation is a major cause of a) caries, b) gingivitis and c) foul breath.

It has been stated that mouth breathing has serious effects on the development of the facial skeleton, causing malocclusion of the teeth owing to disturbances in the normal labial, buccal and lingual muscular forces. However, both older and newer investigations would suggest that the adverse effects of oral breathing are confined to changes in the dimensions of the maxillary arch. These investigations demonstrated that in actual fact the maxillary arch is contracted and increased in length. This produces an overjet or deep overbite. The palate appears to be higher than normal although this is an optical illusion, due to the contraction of the maxillary arch. The investigations also showed that there is a higher percentage of malocclusion cases in those with oral breathing as reported by Paul and Nauda Ram (1973).

Collapse of the alae may be either functional or organic. In the functional type the structural tissues of the nose are normal, but the patient merely breaths through the mouth. This condition can be corrected by careful instruction of the patient as to the correct method of breahing. At times it can be advantagous to provide such patients with an oral screen. This prevents mouth breathing and frequently serves

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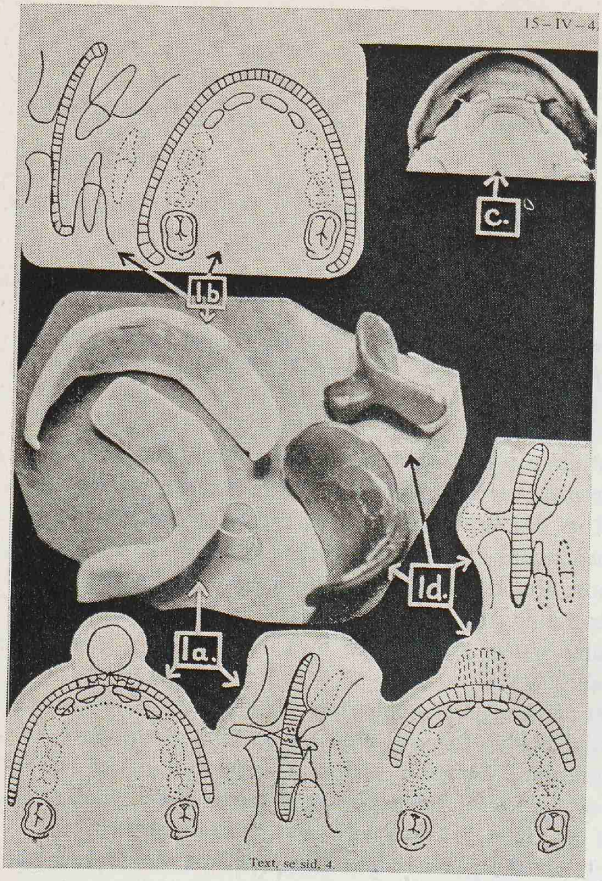


Figure 1. Oral screen (Birger Kjellgren).

as orthodontic apparatus exerting pressure on the protruding upper incisors as described by Kjellgren (1965). The polymeric material used for such a screen should be radiopaque. It is essential that suitable dimensions are employed in order to avoid accidental swallowing of the device.

Organic collapse of the alae normally requires surgical treatment and odontological intervention is rarely indicated unless complete correction cannot be obtained by surgery alone.

Prosthetic treatment of collapsing alae is indicated when impairment of the alae function is only temporary or as stated above when optimal function cannot be achieved by surgical procedures alone.

It is possible by prosthetic treatment to:

1) widen the anterior part of the nasal canal,
2) change the direction of the air stream within the nose by lifting the nasal tip,
3) prevent complete collapse of the alae.

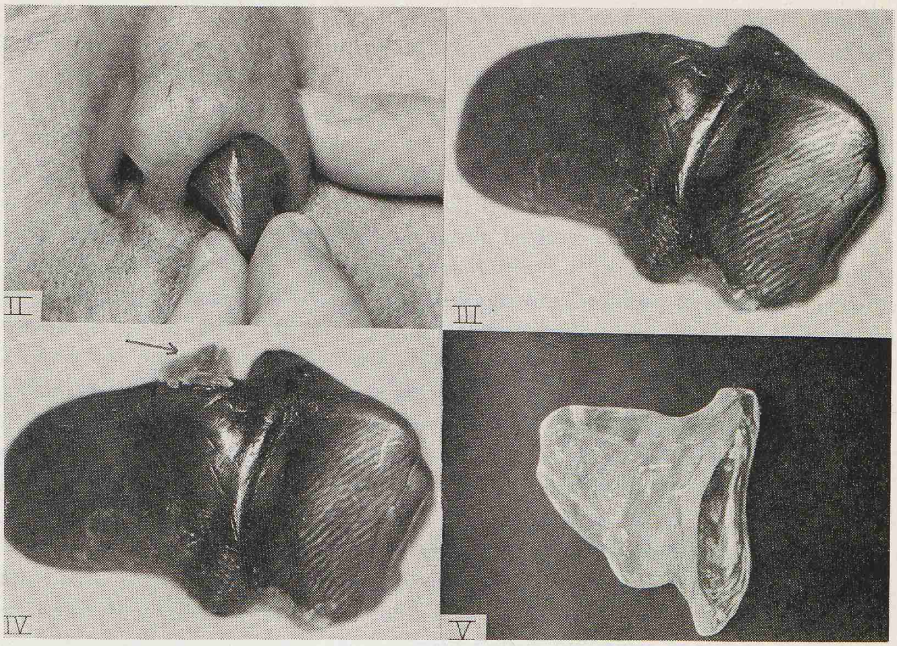
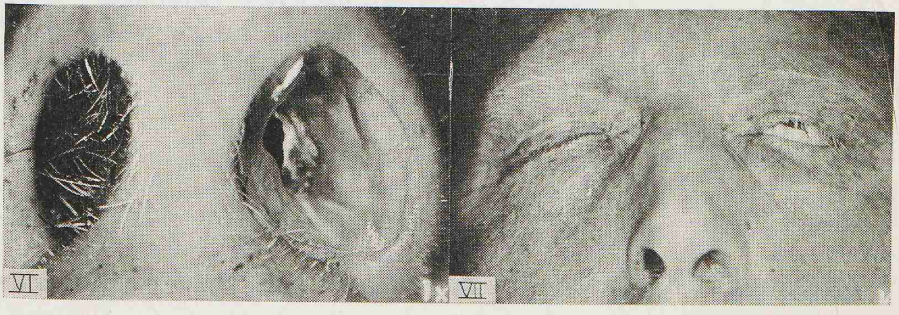


Figure 2. Wax impression being moulded.
Figure 3. Wax impression removed.
Figure 4. Wax added at site of recess of vestibule.
Figure 5. Acrylic prosthesis (completed).

In our experience modelling wax is the best material with which to take impressions of the nasal vestibule. The wax should be heated over a spirit lamp until it becomes soft but not to the extent that it begins to drip. The wax is then moulded into a cone slightly longer than the vestibule of the nose and left to cool.
With the base of the cone as a handle the wax is again heated so that the surface is softened and inserted into the vestibule. The tip of the cone should pass the

Figure 6. Acrylic prosthesis in position.
Figure 7. A case of Bell's palsy with the prosthesis in position.



ostium. Thereafter the wax is moulded while still soft to the contours of the vestibule. It is left in position for approximately two minutes until hardened and then removed. A drop of wax should be added to the impression at a site corresponding to the recess of the vestibule before being sent to the laboratory for processing. This is done bij melting some wax on a knife and allowing one drop to drip onto the correct place on the impression, it can be sited correctly by keeping the point of the knife in position until the wax has hardened.

Final adjustments to the processed prosthesis, which should be made in clear acrylic, can easily be carried out with a round burr No. 8. At times the appliance refuses to remain in position, and the difficulty can be overcome by the addition of small amounts of cold curing acrylic compound to the areas of the appliance corresponding to the recess of the vestibule.

It should be noted that certain patients have a negative attitude to prosthetic treatment and in such cases the described treatment is of little avail.

CONCLUSION

It can be concluded that prosthetic treatment is a valuable adjunct to surgery of the alae and a considerable improvement on previous use of vaseline cotton wool balls inserted into the recess of the vestibules. These are liable to dry out with the subsequent danger of aspiration during sleep.

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