NOTES ON NASAL PLASTIC SURGERY*

By A. B. KEITH WATKINS (Newcastle, N.S.W.)

THIS article makes no pretence to cover the ground at all fully. Reference will be made only to some points of special interest.

Fractures of Nasal Bones

Many varieties occur but, whatever the details may be, the treatment is simplified if one remembers that the result is nearly always a bilateral fracture with rotation of both nasal

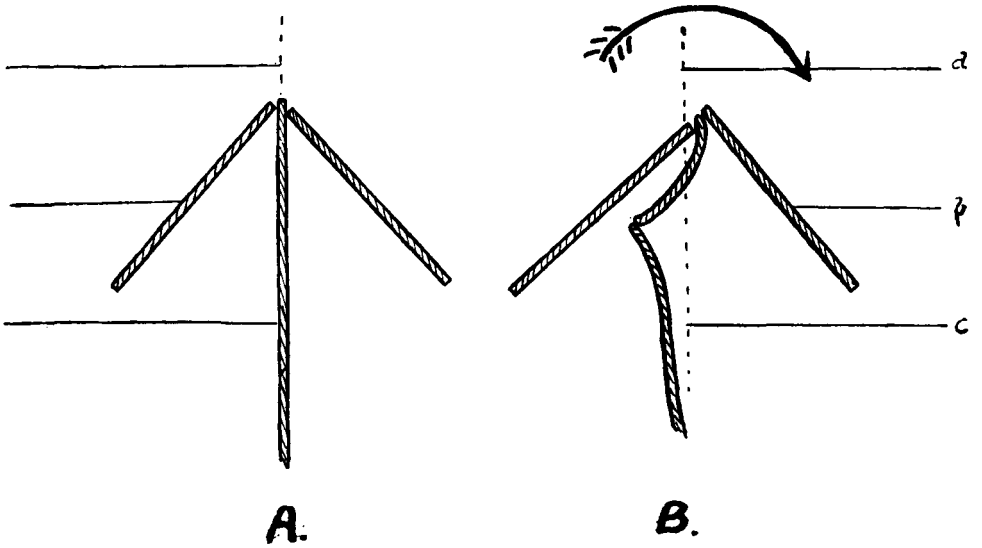


FIG. 1.

a = mid line. b = nasal bone. c = septum.

Arrow indicates direction of rotation of nasal bones around vertical axes after fracture with usual displacement.

bones around their vertical axes in the same direction. Figs. 1-2. The only other variety worth remembering is that in which sufficient comminution occurs to produce a tendency for the bridge to collapse.

Treatment of the former type consists in rotating the nasal bones and maintaining the position until the tendency to recur ceases.

---

* Read before the Oto-Rhino-Laryngological section of the B.M.A., at the Annual Meeting at Dublin, July 27th, 1933.

https://doi.org/10.1017/S0022215100039608 Published online by Cambridge University Press

Maintenance of Internal Nasal Splints in Position

When there is a slight tendency for the deformity to recur and pressure on the former convex side by the patient does not maintain the corrected position, an internal splint on the concave side will help. Fig. 3.

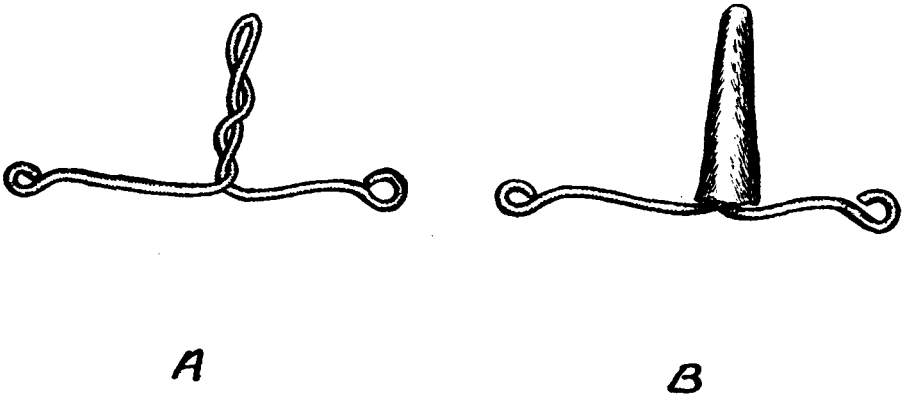


FIG. 3.
Internal nasal splint for use after fractures of nasal bones or to support Thiersch grafts.
B shows wire covered with dental composition.

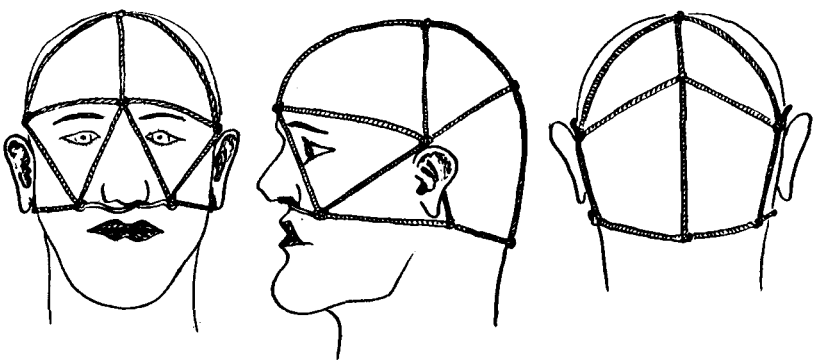


FIG. 4.
Method of fixing internal splint with tapes.

This splint is of use also as a support for Thiersch grafts to line flaps. The difficulty is to fix the splints adequately and Fig. 4 shows how this can be done comfortably with tapes only.

https://doi.org/10.1017/S0022215100039608 Published online by Cambridge University Press

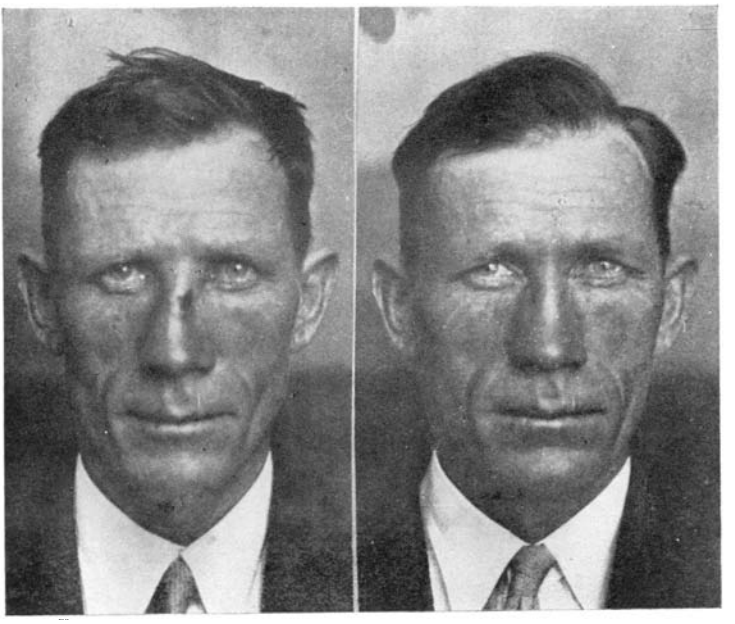


Fig. 2.

a. Before. b. After.

Fractured nasal bones.

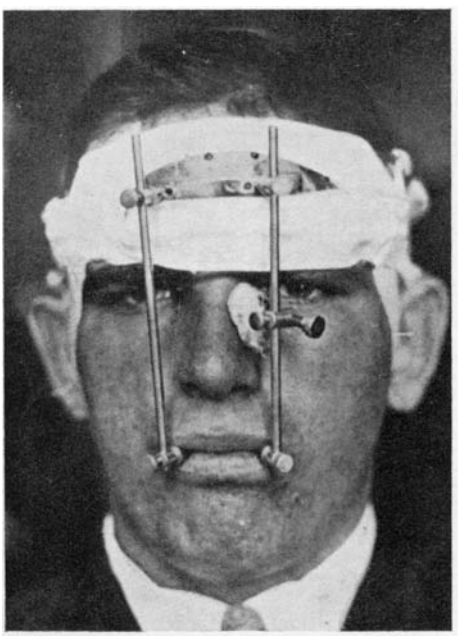


Fig. 5.

https://doi.org/10.1017/S0022215100039608 Published online by Cambridge University Press

https://doi.org/10.1017/S0022215100039608 Published online by Cambridge University Press

Notes on Nasal Plastic Surgery

External Pressure Splint

When the internal splint is insufficient, external pressure can be applied. Fig. 5 shows an efficient model made by a patient, but a similar one has, I believe, been on the market for years.

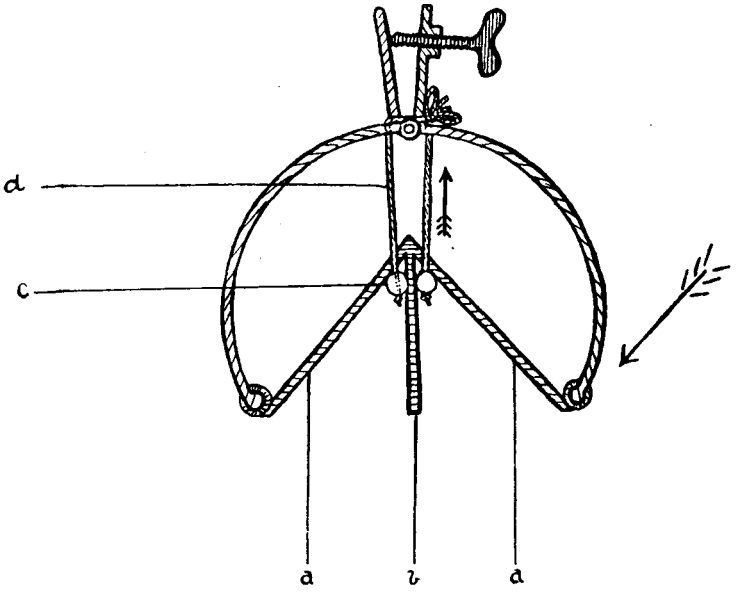


FIG. 6.

Illustration of the principle of Carter's splint.
a = nasal bone and ala. b = septum. c = short splint. d = silk thread perforating nose and assisting anterior traction.

Author's Modification of Carter's Splint

Carter has described a splint for retaining the position when there is comminution with depression of the bridge. Fig. 6 shows the splint which forms an arch over the nose. Straight internal splints are placed in the nose and silk threads tied on to them are made to perforate the soft tissues of the nose and are fixed to the apex of the arch. By adjusting the legs of the arch with the screw, the posterior borders of the nasal bones can be squeezed together and the forward tension on the internal splints increased. The obvious drawback is perforation of the nasal soft tissues with the silk threads.

I have therefore modified the splint. My first change was to use U-shaped splints instead of Carter's straight ones. One limb of the U was inserted into the nose and traction was taken

https://doi.org/10.1017/S0022215100039608 Published online by Cambridge University Press

from the external limb. This produced the same result as if traction was taken from the inside limb. Fig. 7. Owing to the difficulty of adjusting the pull to be exactly at right angles to the nasal bones, the next modification was to add a curved limb from the forehead to the splint, and from this traction from the U-shaped splints was taken by silk threads. The complete splint is now made by Mayer & Phelps and is shown in Fig. 8.

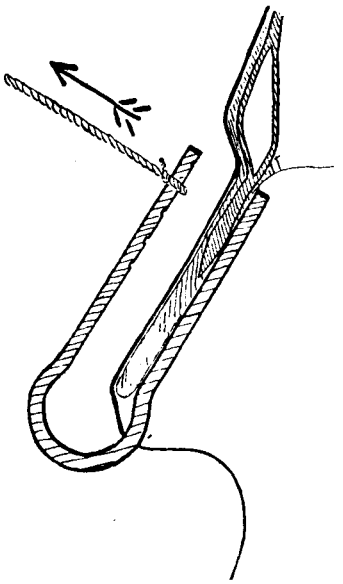


FIG. 7.
Author's modification of Carter's splint.
Illustration demonstrates how anterior traction on the nasal bones is obtained by U-shaped splints.

When it is in use the patient can breathe through the nose and if there is an external nasal wound the splint can be adjusted to prevent pressure on it.

Implants for Saddle Nose

The depression of a saddle nose can be filled with many materials. Autogenous rib grafts have many advantages. Despite statements to the contrary, they neither grow nor atrophy, even if left mobile in subcutaneous tissue. If infection occurs the grafts dissolve and do not have to be removed. The objection to them is that a wound has to be made to obtain them and if a large piece is required it cannot be taken without

https://doi.org/10.1017/S0022215100039608 Published online by Cambridge University Press

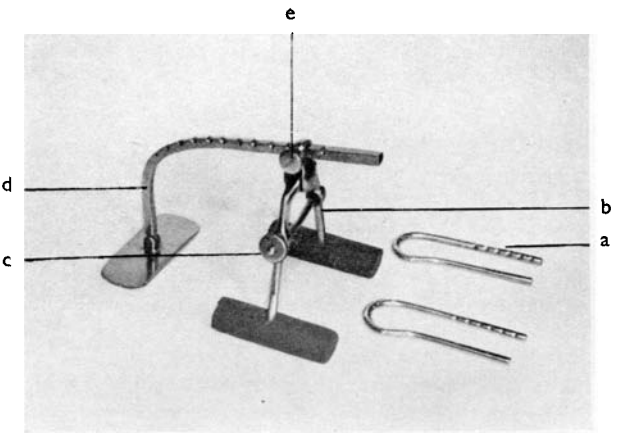


Fig. 8.

Author's modification of Carter's Splint.

a. = U-shaped splints shown in Fig. 7.
b. = Arch of splint, hinged above and fitted with rubber covered rods below.
c. = A screw to adjust angle between limbs of arch.
d. = The mast extending from the forehead plate to the apex of the arch. The notches on the mast are for the silk threads from the U-shaped splints.
e. = A screw to adjust the effective length of the mast.

https://doi.org/10.1017/S0022215100039608 Published online by Cambridge University Press

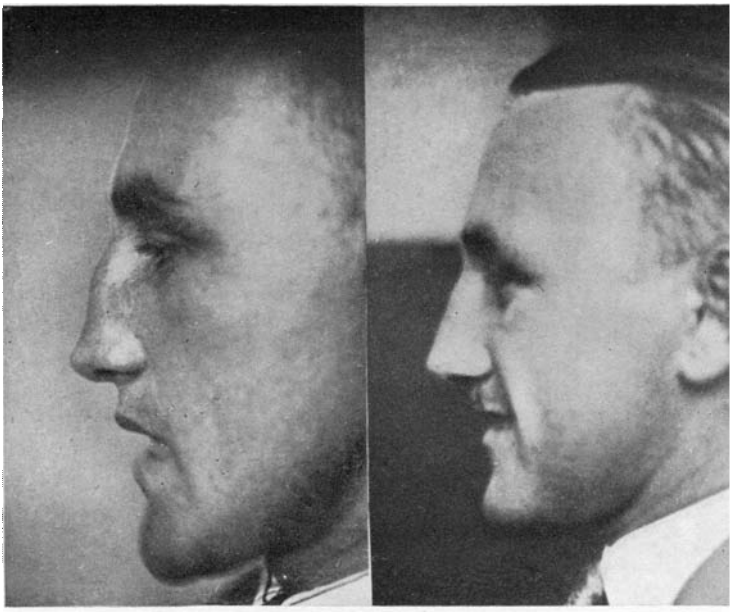


Fig. 10.

a. Before. b. After.

Saddle nose treated with short dorsal implant.



Fig. 11.

a. Before. b. After.

Saddle nose with collapse of lower part of septum also, treated with columellar as well as dorsal implant.

https://doi.org/10.1017/S0022215100039608 Published online by Cambridge University Press

producing a pleural reaction with far more temporary disability than the whole of the rest of the operation.

Bone grafts are quite unsuitable. Bone, unless fixed firmly at one or both ends, atrophies.



FIG. 9.

The interrupted lines show result of treating a case of saddle nose needing two grafts. The continuous lines show the "Roman" nose produced by neglecting the columellar graft.

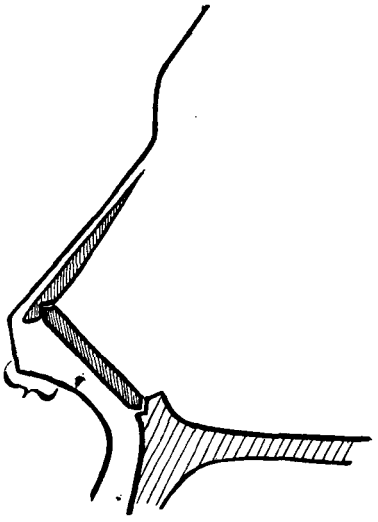


FIG. 12.

Treatment of saddle nose. Method of fixation of columellar graft by notch on dorsal graft.

https://doi.org/10.1017/S0022215100039608 Published online by Cambridge University Press

Young elephant ivory is claimed to be the best material. It is said to be possible to distinguish it from such irritant ivories as walrus tusk by the fact that it is not stained by strong sulphuric acid. A number of grafts can be kept roughly shaped and be finished to exact size at the operation. If one is dropped it can, unlike cartilage, be re-sterilised. My personal

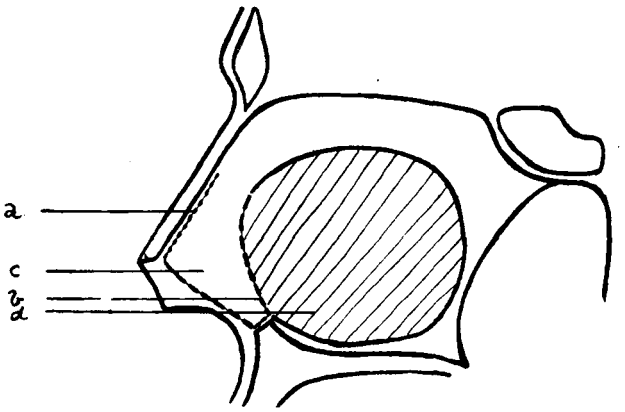


FIG. 13.

Operation for crooked nose due to deflected cartilaginous septum.
a=fine dotted line marking incision in cartilage of septum.
b=coarse interrupted line marking edge of cartilage.
c=left to support nose.
d=resection of bony septum as required.

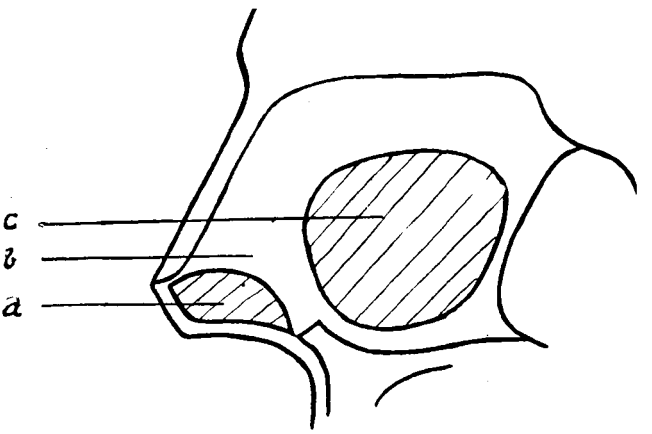


FIG. 14.

Operation for dislocated anterior end of septum.
a=cartilage removed from side of dislocation.
b=cartilage left to support nose.
c=resection of septum, causing posterior obstruction from opposite side to cartilage a.

https://doi.org/10.1017/S0022215100039608 Published online by Cambridge University Press

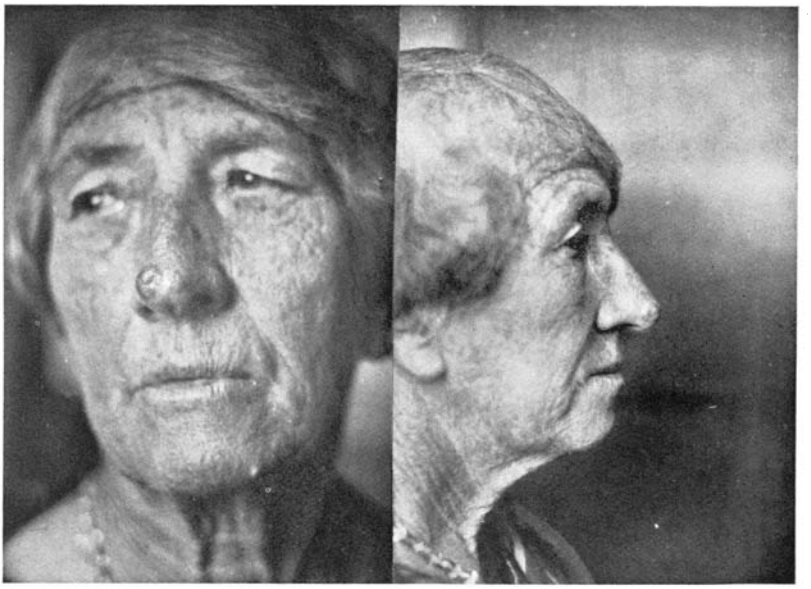


Fig. 15.

a. Before. b.

Rodent ulcer of nose.

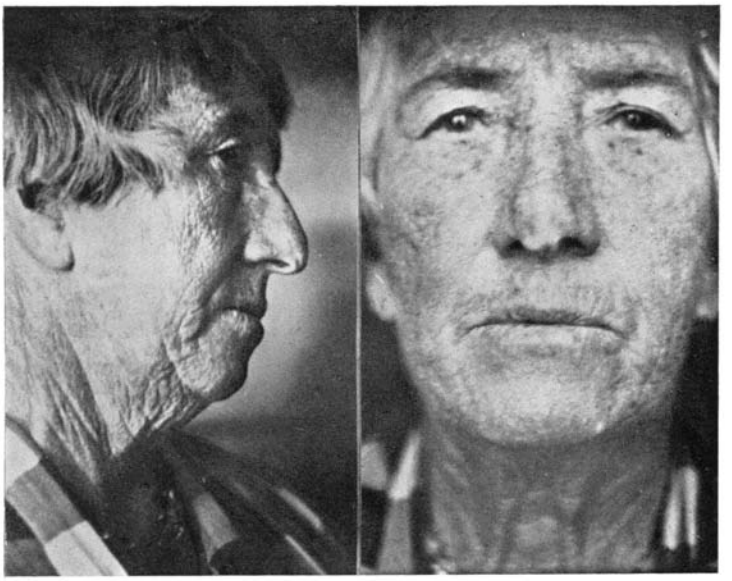


Fig. 17.

a. After. b.

Result of treating case shown in Fig. 15 by operation detailed in Fig. 16.

https://doi.org/10.1017/S0022215100039608 Published online by Cambridge University Press

https://doi.org/10.1017/S0022215100039608 Published online by Cambridge University Press

experience of ivory grafts is very limited, but it appears to be the material of choice and is now widely used.

In treating these cases one must decide whether a graft into the dorsum of the nose will suffice or whether a columellar graft is also required. By neglecting this, many a good result is marred by the columella being unduly short, and the dorsal graft looks tilted so that the upper end produces a Roman nose.

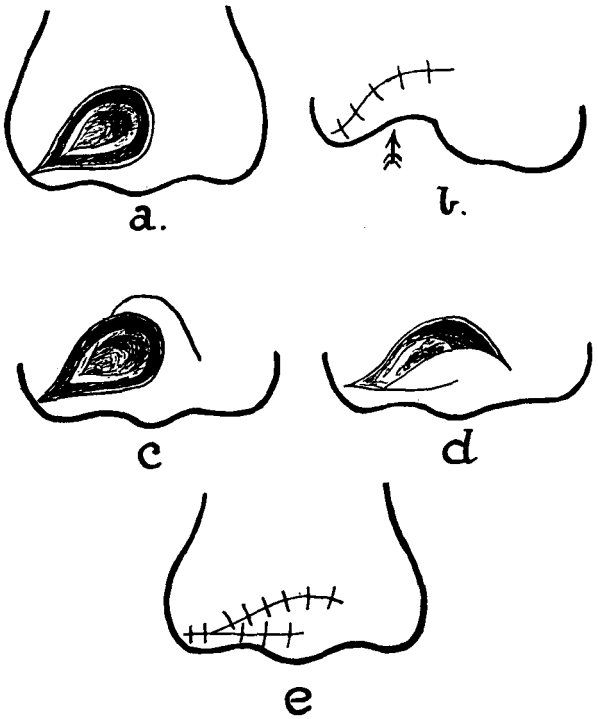


FIG. 16.

Operation performed on case shown in Fig. 20.

b. demonstrates deformity that would have resulted from simple excision and suture.

Fig. 9. Often a very short graft of not more than ½ inch long will remedy a considerable saddle as shown by Fig. 10, and should always be used where possible. Fig. 11 shows a case in which a columellar graft also was essential to produce a good result.

The graft should not be too long, for by getting rid of the normal depression between the forehead and nose an unsightly

https://doi.org/10.1017/S0022215100039608 Published online by Cambridge University Press

classical Grecian effect is produced. Similarly the graft must not be too narrow or the result will be the ugly narrow mid-line ridge which I call " keel nose ".

In planning the operation one should use as small an incision as one can and place the graft at the greatest possible depth from the surface. Surface infection is then less likely to

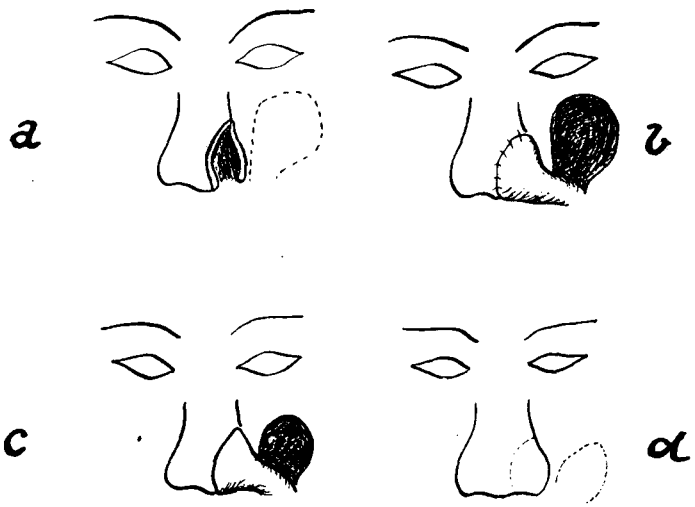


FIG. 18.

Method of filling alar defect from tissue of cheek.

b. shows condition where Wolfe graft on raw surface of cheek has failed.
c. shows shrinkage of wound of cheek to such an extent that, after division of pedicle, the unrolled pedicle covered the raw area.

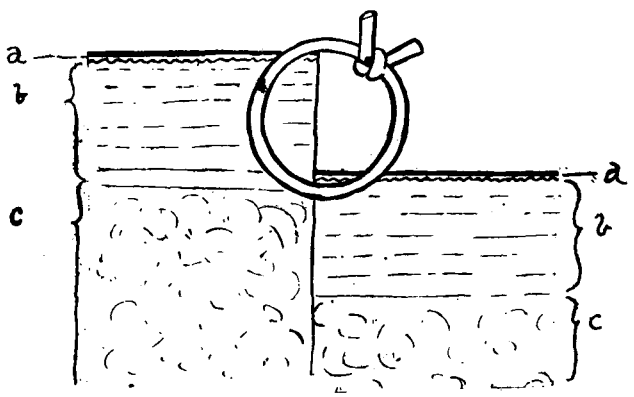


FIG. 19.

Dermo-epidermic suture.

a = epidermis. b = dermis. c = subcutis.

https://doi.org/10.1017/S0022215100039608 Published online by Cambridge University Press

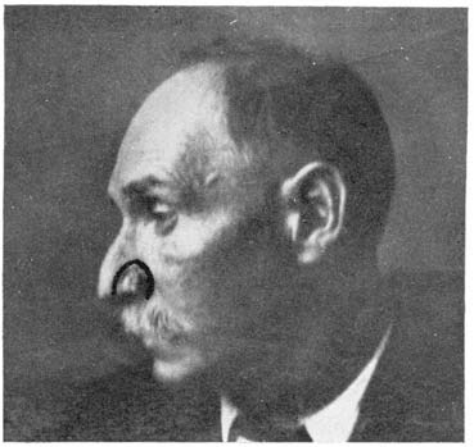


Fig. 20.

Before.

Carcinoma of ala of nose; area to be excised outlined.

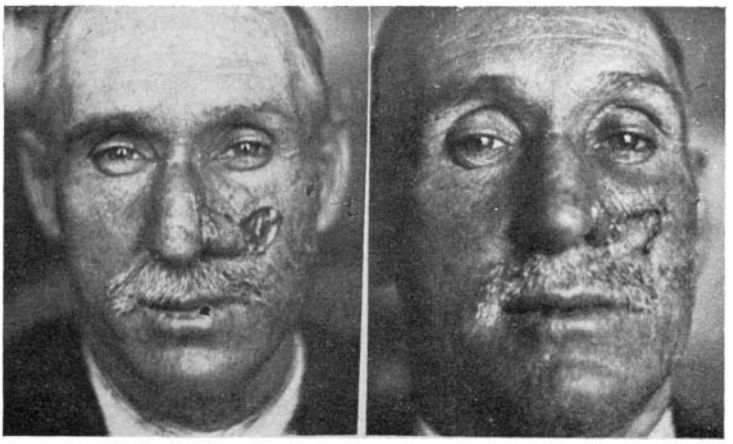


Fig. 21.

a. During. b.

a. Shows case of Fig. 20 after Wolfe graft has failed and wound on cheek has shrunk to one-third original size.

b. Edge of ala shaped and pedicle unrolled and replaced on cheek.

https://doi.org/10.1017/S0022215100039608 Published online by Cambridge University Press

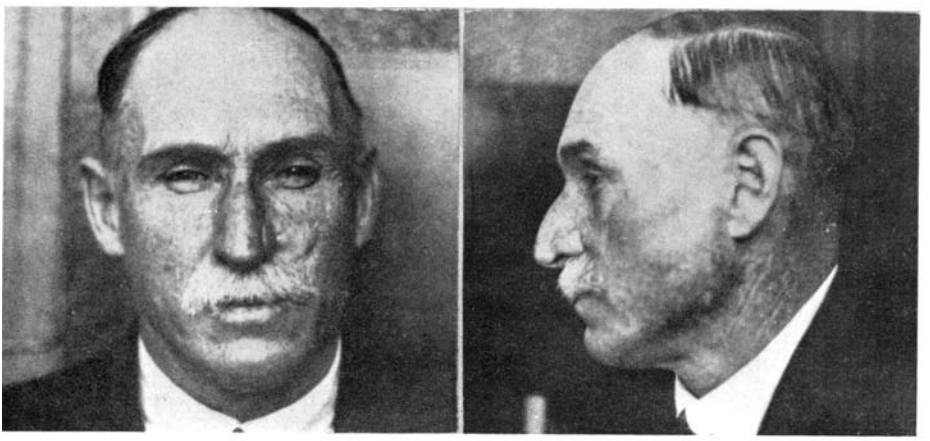


Fig. 22.

a. After. b.

Case of Fig. 20 after repair by pedicle graft from cheek.



Fig. 23.

a. Before. b. During.

a. Patient with tumour of nose for forty years.

b. After excision and commencement of repair with tube graft.

https://doi.org/10.1017/S0022215100039608 Published online by Cambridge University Press

reach the graft. One therefore avoids the Joseph mucosal incision at the septo-alar junction which lies almost in contact with the graft. To gain depth neither do I use the hinged graft as with it the columellar portion of the graft lies close to long bilateral incisions in septal mucosa with right-angled bends at their ends.

The incision advised is a short antero-posterior mid-line one, in the anterior third of the columella. When the two grafts are required a notch is made in the lower part of the posterior surface of the upper one and this is first put in place. Fig. 12. The columellar one is then cut as long as possible and this is slipped into a tunnel extending from the notch in the first graft to the front of the nasal spine of the superior maxilla. It should be so long that anterior retraction on the first graft is required in order to allow it to slip into its notch.

When cartilage grafts are used there is no need to preserve the periosteum as they soon become covered with a new one and cartilage is anyhow not nourished by blood vessels. When cutting the graft it is advisable to insert a spare piece of rib cartilage in the subcutis of the chest wall so that, if needed later, it can be obtained without producing another pleural reaction.

Septal Causes of Crooked Noses

When the bony septum is involved it does not produce a crooked nose unless the nasal bones are crooked too, in which case resecting the septum will not straighten the nose, but must be done as the first stage of Joseph's or Frühwald's operations for moving the whole nasal bridge to the mid-line.

When, however, a deflection of the cartilaginous septum causes a crooked nose, great care is required, for resection will either be insufficient or there is great risk of a depressed nasal tip or low saddle nose ensuing. I advise a septum resection, starting the dissection low down at the inferior free border of the septal cartilage (Fig. 13), but very little of the septal cartilage is removed and none of its inferior border. The anterior portion of the cartilage is freed by a tenotomy incision well forward. This generally frees the nose to return to the mid-line, whilst sufficient support is afforded by the remaining cartilage.

Dislocated Anterior end of the Septum

This produces unsightly deformities. Generally there is a corresponding deflection of the septum to the opposite side

https://doi.org/10.1017/S0022215100039608 Published online by Cambridge University Press

further back. If the whole septum is dealt with, collapse of the nose may occur. The line of treatment to follow is to remove the deflected cartilage below where it is dislocated (Fig. 14), then to leave an antero-posterior strip of cartilage to support the nasal tip, etc. and to make a second incision as for an ordinary septal resection, only further back, and to resect the other deflection from the side opposite to the dislocation. It will be found that there is always an excess of skin after dealing with the dislocated portion. This is often sufficient to produce some obstruction unless an elliptical portion of it is removed.

Reproduction of Symmetry after Excision

After excision of small portions of the nose, simple suture may produce considerable deformity. Fig. 15 shows a patient with a rodent ulcer on one side of the nasal tip. Excision left a defect shown on Fig. 16a. Simple suture would have raised the alar margin producing the deformity, Fig. 16b. As the skin of the nasal tip does not show a scar well if apposition is good, form is worth obtaining at the expense of extra incisions. A flap was therefore made to remove tissue from the opposite side of the nasal tip, Fig. 16c, and this was turned on its pedicle to fill half the defect, Fig. 16d, which was then closed with sutures producing the result, Fig. 16e. The loss of tissue represented by the tissue removed was now shared equally by both sides of the nasal tip and, after healing, the patient was left with a symmetrical nose, Fig. 17. This is an example which must be varied to suit the case.

Partial Rhinoplasty

Larger defects can be repaired by flaps. The tube graft, whilst useful and necessary, suffers from the disadvantage that if made long enough to reach from the neck to the nose without tension, its weight is sufficient to produce some traction, which may loosen some of the sutures and produce an imperfect scar. This pull of gravity can be diminished by a sling of strapping, but a light pedicle graft from the cheek was considered as a substitute, the objection being that the cheek is a notoriously bad site on which to attempt to get a Wolfe graft to unite.

https://doi.org/10.1017/S0022215100039608 Published online by Cambridge University Press

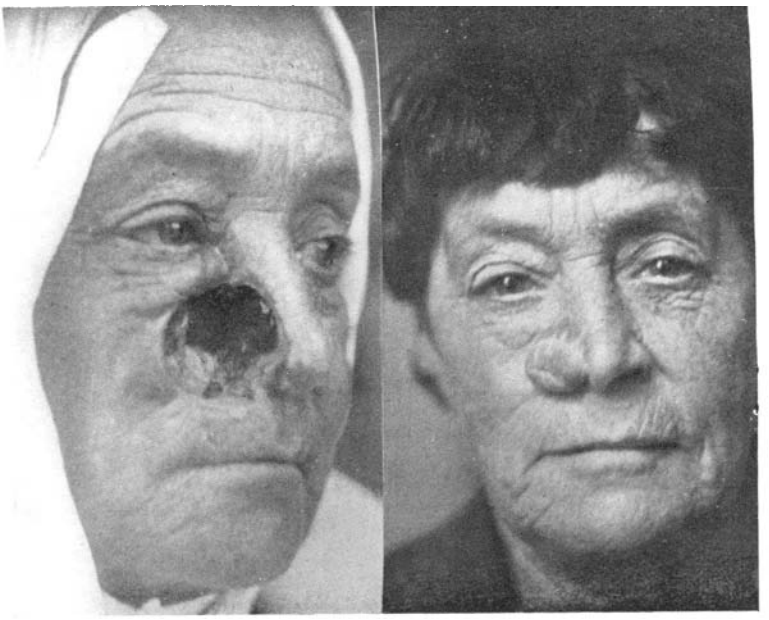


FIG. 24.

a. During. b. During.

a. Case of Fig. 23 after granulations at edge of wound found to be epithelioma and more extensive excision performed.
b. Defect filled by redundant tissue from coil graft.



FIG. 25.

a. After. b.

Case of Fig. 23 after trimming of tissue from coil graft and use of dermo-epidermic suture.

https://doi.org/10.1017/S0022215100039608 Published online by Cambridge University Press

https://doi.org/10.1017/S0022215100039608 Published online by Cambridge University Press

The difficulty has been overcome in the case of absence of an ala (Fig. 18) by turning into the defect a pedicled cheek flap, rolled at the lower border and lining it with a Thiersch graft. Fig. 18b. A Wolfe graft with a pressure splint is applied to the cheek. If the Wolfe graft fails to unite the next stage is delayed until the cheek wound has shrunk to less than half its original size (Fig. 18c) when the pedicle is divided and returned to the cheek, when it will now be found to fill the gap from which it was originally taken, Fig. 18d. The posterior edge of the new ala is now adjusted so that the normal groove between the cheek and nose is reproduced, and this I do by means of what I call the dermo-epidermal suture, Fig. 19. The sutures are inserted so that the epidermis of the cheek is in contact with the deeper layers of the dermis of the ala. Figs. 20-22 show an actual case.

The operation must not be used where nearly half the nose has been lost, for the cheek flap would have to be so large that shrinkage of the cheek wound would produce an unsightly drag on the lower lid should the Wolfe graft fail.

The alar epidermo-dermal suture was used in another case in which a tube graft was used. Unfortunately the patient, Fig. 23a, has had a tumour of the nose stationary in size for forty years. As it was considered that the case, if malignant, could not be more than a rodent ulcer, a not very drastic excision was performed and a tube graft inserted, Fig. 23b. This graft united, but a few weeks later granulations sprang up from the site of unions and snippings were reported to be recurrent squamous-celled carcinoma. A much more drastic excision (Fig. 28a) involving the cheek, the anterior wall of the antrum, the naso-antral wall and graft was performed. As the tube graft was not now long enough to reach the nose it was "caterpillared" *viâ* the skin over the angle of the jaw into place and was used as a "coil graft" to fill the defect. This left an ugly mass of tissue of much the size and shape of the original tumour, Fig. 28b. After adjusting and trimming the mass, dividing it along the alar groove and re-uniting the incision with the dermo-epidermal suture, the result, Fig. 25, was obtained. In judging it one must remember that, owing to the bony defect, the tension all comes from far out on the cheek, and the use of the suture has produced a far better result than could have been obtained without it.

https://doi.org/10.1017/S0022215100039608 Published online by Cambridge University Press

A. B. Keith Watkins

Verfasser will in dieser Studie nicht die gesamte plastische Chirurgie behandeln, sondern begnügt sich einige besonders interessante Punkte hervorzuheben und verschiedene Modifikationen mitzuteilen, die er bei der Behandlung und Korrektur verschiedener Defekte erprobte. Die Abänderung von Carter's gut bekannter Spaneinsetzung wird beschrieben, ebenso werden die verschiedenen Implantationen besprochen, die bei Sattelnase in Anwendung kommen können.

. . . .

L'auteur ne prétend pas passer en revue toute la chirugie esthétique, mais se contente d'indiquer certains points qui présentent un intérêt plus particulier, et de décrire diverses modifications qu'il a trouvées utiles d'apporter dans le traitement et la réparation de différentes blessures. Il décrit la modification à l'attelle bien connue de Carter et les divers greffons qui peuvent être employés dans la correction des nez ensellés.

https://doi.org/10.1017/S0022215100039608 Published online by Cambridge University Press