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Paraffinoma revisited: a post-operative condition following rhinoplasty nasal packing

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Abstract
Paraffin impregnated tulle is frequently used as a post-operative dressing after surgical repair of wounds, on skin-donor sites and in packing of tissue cavities. Historically, paraffin has been injected into various sites of the body and paraffinoma is a well-described complication. Despite this, nasal packing with paraffin gauze is still common after rhinoplasty. We report a case of paraffinoma occurring after rhinoplasty and discuss the avoidance of this rare but serious complication and suggest silicon mesh as an alternative dressing.

Key words: Rhinoplasty; Paraffinoma

Case report

A fit forty-year-old woman was admitted for elective rhinoplasty. Following surgery, nasal packs of paraffin gauze were used and a standard plaster of Paris cast was applied to the bridge of the nose. The packs were removed after 24 hours and the patient's post-operative course was uneventful. Two months later, the patient presented with a non-tender swelling 0.5 cm in diameter in the glabellar region with no evidence of infection. The lesion was excised surgically and found to be a paraffinoma. Four months later the patient presented with a similar complaint, and on this occasion four separate swellings ranging between 0.5–1 cm in diameter on both sides of the nose at the site of the infracture (Figure 1). On this presentation she had repeated episodes of local inflammation.

Histology showed numerous ovoid spaces of various sizes, creating an irregular sieve-like appearance. Around these spaces and spreading into adjacent tissues was a granulomatous inflammation with fibrosis. The fat droplets were surrounded with macrophages and multinucleated foreign-body type giant cells (Figure 2). The appearance were those of an oleogranuloma, an inflammatory reaction to unabsorbable fatty material in tissue. When the reaction is caused by paraffin oil, the lesion can be called a paraffinoma. Electron microscopy demonstrated many large active macrophages containing phagocytic vacuoles filled with flocculent material. Infra-red spectrophotometry indicated the fat to be virtually identical to a sample of paraffin oil. Microbiological studies demonstrated the absence of bacterial, fungal or parasitic infestation in the specimens.

Discussion

Throughout the centuries emollients were prized for wound dressings. Riechenbach announced the discovery of paraffin from beechwood tar. The name was derived from the Latin, parum, meaning 'little' and affinitas, meaning 'affinity' – thus representing its chemical non-reactivity. Paraffin was subsequently used in bandages in the clinics of Theodore Bilroth and its limited injection into human

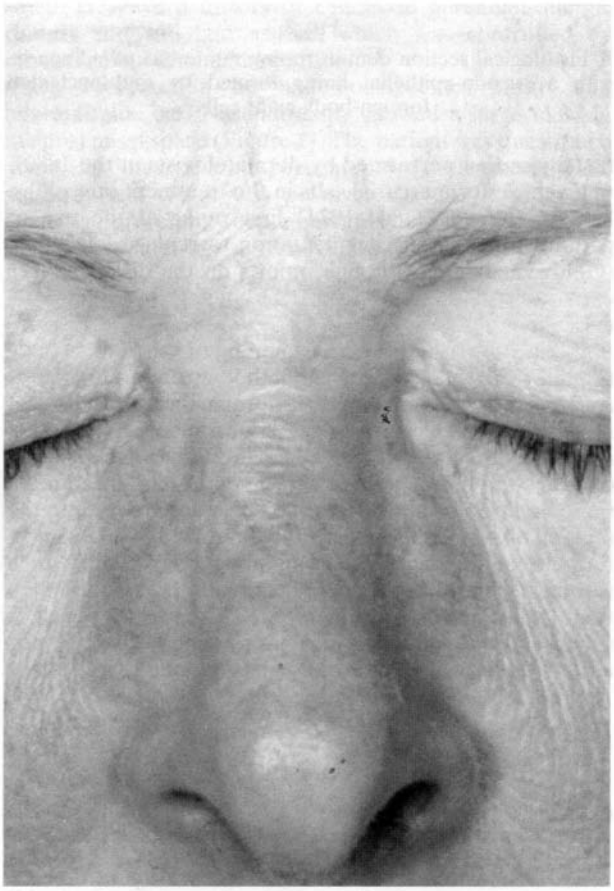

Fig. 1
Paraffinoma along the lines of the infractures.

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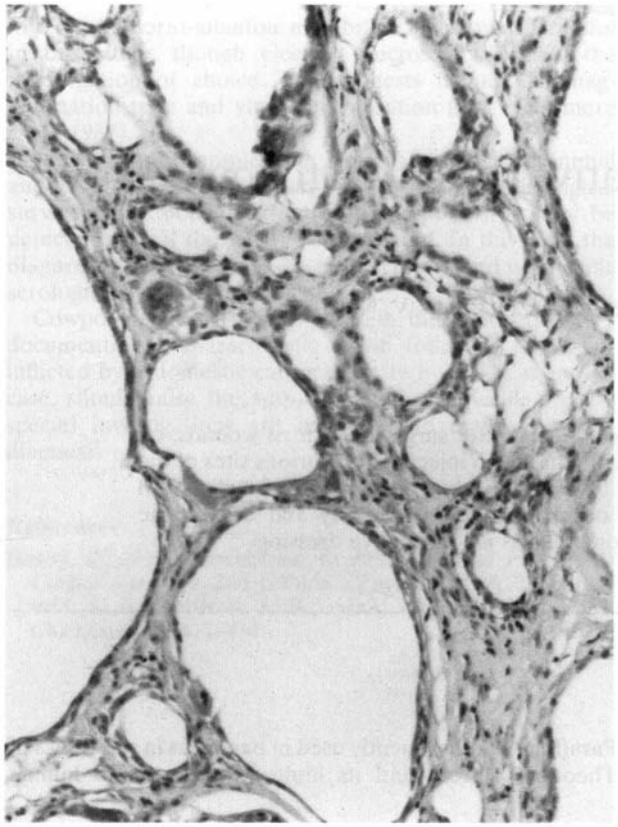

FIG. 2

A histological section demonstrating numerous ovoid spaces with a pseudo-epithelial lining formed by multinucleated foreign-body giant cells.

tissue was first performed by dermatologists in the 1880's as a vehicle for mercurial salts in the treatment of syphilis. Robert Gersuny (1844–1924) first reported the use of paraffin for aesthetic augmentation to replace lost tissue (Goldwyn, 1980). Although reports on the disadvantages of paraffin became soon evident these were apparently unheeded.

Initially described, at the beginning of the 20th century (Heidingsfield, 1906), the histopathology of paraffinoma is a characteristic granulomatous foreign body reaction to mineral oil. The histological appearance is the same irrespective of the agent used as the tissues lack specific enzymes for the degradation of mineral oils. In addition there seems to be a highly variable response to injection of mineral oil which may be a result of the load of oil injected, the site of injection or an unknown idiosyncratic host response. These results have been confirmed experimentally (Nairn and Woodruff, 1955). This reaction develops slowly and is usually at its maximum at about three months although the delay between injection and paraffinoma response is again highly variable i.e. weeks to decades (Feldmann *et al.*, 1992). Boo-Chai (1965) had the opportunity to study paraffinoma following indiscriminate injection of paraffin into tissues of various parts of the body. Of relevant interest are his results involving 15 cases of paraffinoma around the nose. He found the masses were relatively fixed to the underlying bone, and our operative findings confirmed this.

It is probable that the paraffin extended through the bone at the site of the infracture to be deposited in the overlying tissue. Boo-Chai (1965) treated these lesions by surgical excision and was inclined to leave the diffuse lesions alone as one case regressed spontaneously after two years.

In view of our experience we have now started using silicon sheet dressing (Mepitel, Molnlycke Health Care, Sweden) for packing the nose after rhinoplasty to avoid this complication.

Conclusion

The purpose of this case report is to bring this rare but avoidable complication of nasal packing with paraffin-impregnated gauze to the attention of surgeons performing rhinoplasty. As there is no unique advantage in the use of paraffin gauze in rhinoplasty it would seem sensible to use an alternative material. We would like to suggest the use of silicon mesh (Mepitel dressing) as a packing in nasal surgery.

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