Case Report

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# Myospherulosis following Rhinoplasty

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Myospherulosis is the rare granulomatous reaction that occurs when extravasated erythrocytes come into direct contact with lipid-containing materials.[1] It was first described by McClatchie et al in 1969 when they reported several patients with unusual soft tissue nodules that histologically had fungus-like spherules. The involvement of skeletal muscle in the nodules led to the condition being termed *myospherulosis*.[2]

For many years, the etiology of this condition remained elusive until studies found that most cases were reported following ear, nose, or throat surgery when the wound was packed with a petroleum-based ointment.[3] It is now understood that myospherulosis is an iatrogenic process whereby extravasated erythrocytes are engulfed within a lipid membrane by petroleum-based materials; these structures are later engulfed by histiocytes as part of a lipogranulomatous reaction.[3] Petroleum-based ointments are commonly employed postoperatively as they have beneficial properties for wound healing. As such, the use of petroleum-impregnated gauze can increase the risk of myospherulosis in patients.

We present a rare case of nasal myospherulosis in a patient following rhinoplasty.

## Case Description

A 65-year-old white woman was referred to the facial plastic surgery clinic at our institution by a general otolaryngologist for the evaluation of a firm prominence between the nasal dorsum and the left medial canthal region. On palpation, the prominence felt osseous and fixed; however, a computerized tomography (CT) scan indicated the lesion resembled a preperiosteal cyst (**Figure 1A**).

In 2005, the patient underwent a cosmetic open rhinoplasty at another institution. The nasal packing following the procedure was removed by the surgeon 2 days later. She has since noticed the gradual development of a firm lesion on the left lateral nasal sidewall. She had no functional complaints and denied any other nasal surgery. Her medical history was otherwise unremarkable.

On examination, the lesion measured 7 mm by 6 mm and was firm and nontender. The lesion was nonmobile and felt fixed to the underlying bony nasal framework. It was located precisely halfway between the nasal dorsum and medial canthus along the path of the presumed previous lateral osteotomy (**Figure 1B**). Endoscopic intranasal exam was unremarkable. She felt it was cosmetically disfiguring and wished to have it removed.

Excision of the mass was performed under local anesthesia. An infraorbital nerve block was performed, and a 1-cm vertical incision was made at the junction of the nasal and cheek subunits dissecting down onto the capsule of the firm lesion. It appeared bony in nature. The lesion was excised with sharp dissection and sent for permanent pathology. A 5-0 fast absorbing gut suture was used for closure. The patient tolerated the procedure with no complications.

Histologically, the entire specimen contained aggregates of histiocytes and giant cells with foamy changes and microcystic clear spaces containing degenerated erythrocytes (**Figure 2**). Special stains were negative for fungi. These histological findings were reliably consistent with a diagnosis of myospherulosis.

The patient has since done well and is extremely pleased with her outcome with no evidence of recurrence.

## Discussion

Myospherulosis is the rare foreign-body reaction between erythrocytes within open wounds and exogenous lipid-containing material. We herein report a case of a 65-year-old woman who developed a benign lipogranuloma between

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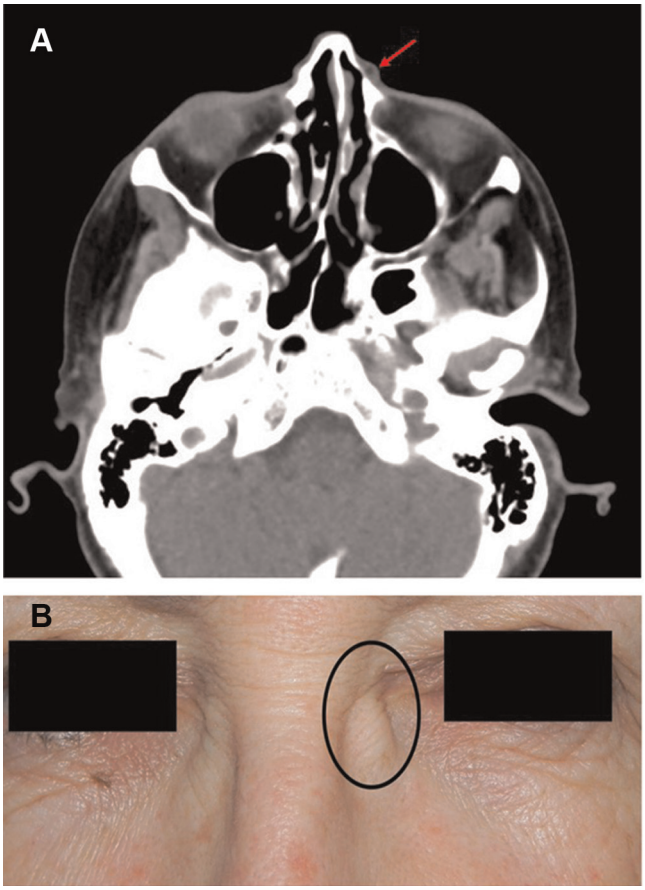


**Figure 1.** (A) Preoperative computed tomography scan demonstrating a mass (red arrow) along the path of the previous left lateral osteotomy. A lucency is visible in the central core of the deposit of myospherulosis. (B) The lesion (circled) is located halfway between the nasal dorsum and medial canthus along the path of the presumed previous lateral osteotomy.

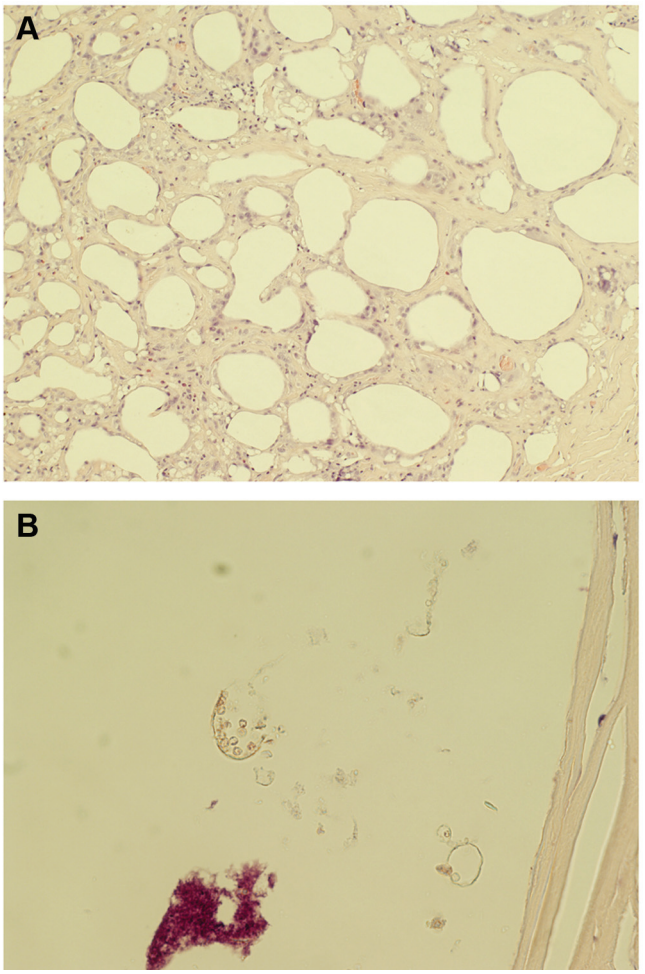


**Figure 2.** (A) Photomicrograph of the biopsy showing numerous small pseudocysts with surrounding foamy macrophages, giant cells, and fibrous tissue (×100, hematoxylin and eosin [H&E]). (B) High-power photomicrograph showing the edge of a large pseudocyst, which contains some debris and 2 sac-like structures (so-called parent bodies). The parent body to the left of midline contains numerous degenerating erythrocytes, a typical finding in myospherulosis (×400, H&E). Pathology provided by Martin J. Bullock, MD, FRCPC.

her nasal dorsum and left medial canthal region following cosmetic rhinoplasty 10 years prior.

Myospherulosis has been noted in several anatomic sites, including the eyes, oral cavity, cerebrum, liver, epidermis, and nasal area.[4] However, to our knowledge, myospherulosis following open rhinoplasty is a rare occurrence. The packing of open wounds with lipid-containing materials appears to be the only identifiable risk factor for the development of myospherulosis.[5] Therefore, we believe the petroleum within the packing penetrated the lateral osteotomy site, causing this condition in this patient.

Despite the many benefits of oil-based ointments, otolaryngologists should be wary of the potential consequences when employing such products. Albeit a rare condition, myospherulosis should be on the list of differentials whenever oil-based products are employed. If such a lesion is encountered in patients, it should be promptly excised and sent to pathology for definite diagnosis of myospherulosis. In future, whenever possible, it may be wise to consider the use of water-based ointments following such procedures.

This case report was in compliance with Nova Scotia Healthy Authority Research Ethics Board.

## Author Contributions

**Tarek I. Lawen**, literature review, research and drafting of manuscript, revision of critically important content, approval of the version of the manuscript to be published; **Paul Hong**, reviewed and collaborated in the drafting of the case description, delineated the key lessons to be learned from this case and future recommendations for other otolaryngologists who come across myospherulosis in their practice, approval of the version of the manuscript to be published; **Andrew T. Harris**, guided the literature review for the case report, collaborated in drafting the introduction and historical background for the case report, approval of the version of the manuscript to be published; **S. Mark Taylor**, lead author, conception of case report, staff surgeon performing procedure described in case report, revision of critically important content, approval of the version of the manuscript to be published.

## Disclosures

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