Calcination cutis is characterized by accumulation of calcium salts within the skin and subcutaneous tissues. It occurs commonly on the scalp, scrotum, extremities, and joints. It rarely involves facial structures such as the nose. It is classified in five categories: dystrophic, metastatic, idiopathic, iatrogenic, and calciphylaxis. The most common is dystrophic, which is due to an underlying connective tissue disease. Systemic sclerosis (CREST) and dermatomyositis account for the majority of cases in this category. An estimated 40% of CREST patients develop calcinosis within 10 years following disease onset. In dermatomyositis, 30% of adults and 70% of children develop calcifications. Calcification is more likely to occur in women in their fourth decade of life. This case represents a rare but clinically relevant presentation of idiopathic calcinosis cutis in an otherwise healthy individual. (Plast Reconstr Surg Glob Open 2022;10:e4120; doi: 10.1097/GOX.0000000000004120; Published online 17 February 2022.)

CASE REPORT

Our patient is a 59-year-old woman who presented to our clinic as a referral from her primary care physician, with concerns for a hard nodule over the right nasal sidewall and nasal dorsum (Fig. 1). She noticed the lesion 3 years before her initial clinic visit, shortly after she struck her nose on the right side. No nasal fractures were noted on imaging at the time of injury. It began as a small nodule, which became progressively larger and firmer. She reported that the lesion began to have liquid drainage as well as extrusion of hard, firm, white fragments. She denied previous surgery, chronic sinusitis, autoimmune disease, or CKD. Her laboratory work revealed a calcium level of 9.0 mg per dL. The patient’s CT scan demonstrated a mass on the nasal dorsum and no evidence of previous nasal bone fracture (Fig. 2).

Initially, the patient’s differential diagnosis included traumatic nodular chondritis, pilomatrixoma, and chondroma. Also, less likely etiologies such as malignancy, primary bone growth, and Paget disease were considered. A diagnostic and therapeutic external approach with excision of the mass and fistulous tract was planned.

Intraoperatively, the mass was discovered to extend caudally through the upper lateral cartilage and cephalically into the caudal aspect of the right nasal bone. The deep aspect involved an area of the internal mucosal lining of the nose measuring 1 cm × 1 cm. The involved upper lateral cartilage was excised and a 5-mm osteotome was used to remove the right nasal bone en bloc with the mass. The dorsal nasal soft tissue was elevated, and there appeared to be additional soft tissue calcifications similar to the primary lesion. The mass and additional calcifications were sent for pathological diagnosis.

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Autologous bony and cartilaginous septal harvest was performed. A 5 × 5 cm septal bone and cartilage graft was harvested. The septal cartilage graft was used to reconstruct the right nasal sidewall and upper lateral cartilage. The bony septal graft was sutured to the nasal and maxillary bones to close the nasal defect, and local advancement flaps with cheek advancement were performed. The mucosal defect was closed primarily with 5-0 chromic suture in a simple running fashion. (See Video [online], which shows a series of photographs from initial visit to intraoperative photographs demonstrating reconstruction.)

Histopathological examination showed the lesions contained amorphous calcifications embedded in the dermis. In addition, the lesions were covered by benign skin, consistent with a diagnosis of calcinosis cutis. There were no signs of dysplasia or malignancy. The patient was followed in clinic and at 3 months had excellent external contour and nasal breathing, with no evidence of recurrence of the mass (Fig. 3).

**DISCUSSION**

Calcinosis cutis is the result of calcium salt deposition in the subcutaneous tissues. The etiology of calcinosis cutis is divided into five categories: dystrophic, metastatic, idiopathic, iatrogenic, and calciphylaxis. Dystrophic, the most common type, is associated with underlying diseases such as lupus, dermatomyositis, systemic sclerosis, or mixed connective tissue disease. Metastatic calcinosis occurs when the calcium phosphate product of the patient’s serum exceeds 70 mmol/L.1 Idiopathic is characterized by a lack of underlying disease or tissue damage, and includes scrotal calcinosis, tumoral calcinosis and subepidermal calcified nodules. Iatrogenic is due to the administration of a calcium or phosphate containing agent. Calciphylaxis occurs in chronic renal failure and involves diffuse calcification of small- and medium-sized vessels.2 Wherein dystrophic and idiopathic/iatrogenic

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**Fig. 1.** Preoperative appearance of large mass protruding from nasal side wall and dorsum. Evidence of punctum and fistulous tract visualized. A, Anterior-posterior view. B, Right oblique view.

**Fig. 2.** CT image that demonstrates calcified mass on the right nasal side wall and dorsum. There is lack of evidence of previous nasal fracture.
forms occur in the setting of normal serum calcium and phosphate, the remaining present with elevated levels. Although the most common sites for calcinosis cutis to occur are the scalp, extremities, scrotum, and joints, facial structures (in particular, the nose) are less frequent.

Our patient’s work up for serum calcium/phosphate abnormalities, underlying collagen vascular disease, connective tissue disease, and hematological abnormalities were normal. There was a remote history of local nasal trauma with no radiographic evidence of fracture. The patient’s renal function was intact and normal. There was no evidence of malignant processes. Based upon these clinical, historical, and laboratory findings, the calcinosis that occurred was diagnosed as idiopathic.

There are very few reported cases of nasal calcinosis cutis. The majority are delayed presentations that occur years after alloplastic augmentation during rhinoplasty, such as with silicone implants. Most commonly, the literature reports idiopathic cases of calcinosis cutis occurring in the extremities, scrotum, and joints. These lesions are comparable in size and histology to the findings in our patient. There is a report of a young woman with facial calcinosis in the setting of uncontrolled SLE, wherein her calcinosis was limited to the preauricular area. In addition to preauricular calcinosis cutis, there have been several reports of calcinosis occurring on the skin overlying the mandible; however these were associated with underlying connective tissue disease. To our knowledge, there have been no reported cases of calcinosis cutis of the nasal dorsum, nor any cases of idiopathic disease arising in the nose.

This case represents a rare presentation of calcinosis cutis and provides an interesting learning point for reconstruction of nasal defects using local flaps, bone grafts and cartilage grafts following the removal of nasal lesions. This case also highlights the multidisciplinary nature of the disease and the value of working in a well-connected health system. The successful management of the patient was the culmination of primary care and ultimately, plastic surgery. Surgeons should be aware of calcinosis cutis in their differential of firm, bone-like masses of the nose and face.

**Fig. 3.** Postoperative photograph showing complete excision of the mass with reconstruction of the nose.

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