CASE REPORT

Focal cutaneous mucinosis after knee replacement: A rare entity successfully treated with intralesional polidocanol

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INTRODUCTION

Cutaneous focal mucinosis is a heterogeneous disorder characterized by abnormal deposition of mucin within the skin. It can be primary (idiopathic) or secondary (associated with a neoplasm or inflammation).1 Mucin is an amorphous, gelatinous substance important for the homeostasis of ground substance and joint fluid. It consists of hyaluronic acid and is usually produced by fibroblasts or synovial cells. Resorption of intra-articular fluid typically occurs through uptake by blood vessels, lymphatics, and perineural spaces.2

There is a paucity of published cases of cutaneous mucinosis developing adjacent to replaced joints.3,4 Apart from presenting our patient, we review the literature, propose the pathogenesis, and suggest treatment for this unusual cutaneous presentation.

CASE REPORT

We present a case of a 73-year-old man who had multiple, asymptomatic, thin-walled bluish 2- to 3-mm-wide cystic papules on his left knee along the surgical scar approximately 1 year after joint replacement (Fig 1). Biopsy and staining found increased dermal mucin and alcian blue positivity consistent with cutaneous mucinosis (Fig 2).

Midsagittal magnetic resonance imaging with contrast found a prepatellar ganglion cyst dissecting to the skin through multiple channels (Fig 3). Intra-articular injection of methylene blue also confirmed the presence of skin–joint communication by staining all the cutaneous papules blue/black and increasing their size. The prosthesis itself was uncompromised and fully functional. The patient was otherwise healthy, apart from mild hypertension. Complete blood count, thyroid tests, immunoelectrophoresis, and antinuclear antibodies were negative or within normal limits.

The cysts were aspirated with an 18-gauge needle attached to 3-mL syringe and then injected until blanching with 0.1 to 0.3 mL of 1% polidocanol solution (Asclera, Merz Esthetics, Raleigh, NC) per lesion. The cysts were completely obliterated after 2 sets of intralesional injections 3 weeks apart. A 2-year follow-up examination found no recurrence of the myxoid cysts and good anatomic and cosmetic outcomes with minimal residual postinflammatory dyschromia (Fig 4).

DISCUSSION

Digital myxoid (mucinous) cysts are a common entity recognized by the dermatologist at the osteoarthritis-affected distal interphalangeal joints. Identical to myxoid cysts (ganglia) occurring at other osteoarticular locations, they lack an epithelial lining and demonstrable connection with the adjacent joint. The development of dissection myxoid cysts has been described in the orthopedic literature after trauma, posterior cruciate ligament reconstruction, and joint replacement in the pretibial and posttibial ligamento-fascial regions, knee joint, and the quadriceps femoris muscle.5,7

Skin involvement with a dissecting myxoid cyst has been reported in only 1 case, occurring after

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spontaneous trauma to an advanced osteoarthritic knee. Treatment of the cyst involved excision of the cutaneous portion and ligation of the visible subjacent connection to the joint space. The presence of multiple cutaneous lesions in our patient made this approach unfeasible; therefore, we chose to obliterate the connection to the synovial space using intracystic injections of polidocanol 1%. Intralesional sclerotherapy has recently been reported as an elegant and successful modality to treat digital myxoid cysts. Sclerosing agents act by inducing direct chemical damage to the lining cells of the cyst walls and to its connections. The mucinous material is first aspirated, after which the 0.5 to 1 mL of polidocanol 2% or 3% is injected into the lesions until blanching occurs as described by Córdoba et al and Esson and Holme, respectively. Our patient responded after 2 treatment sessions with 1% polidocanol concentration, showing that weaker solution of polidocanol could also be effective, with no recurrence after 2 years of follow-up.

Transepidermal elimination of mucin has been described with digital myxoid cysts. However, the pathogenesis of cutaneous mucin deposition after joint replacement surgery is still unclear, although several mechanisms have been considered: increased secretion of hyaluronic acid from osteoarthritic joints, local reactive process to foreign body (prosthesis), accidental implantation of the synovial cells at the surgical site, or traumatic damage of the lymphatic system responsible for the drainage and absorption of the synovial fluid.

This is the fourth reported case of cutaneous mucin deposition after joint replacement surgery (Table I). With the multitude of knee replacement surgeries occurring, it is unclear why more cases are
not reported in the literature. We can speculate that dissecting focal cutaneous mucinosis with pure skin involvement without compromise of the prosthesis, in an otherwise asymptomatic post—joint replacement patient, often remains unrecognized, especially if no dermatologist is involved in the patient’s care.

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Table I. Reported cases of focal cutaneous mucinosis after joint replacement

| Case | Study          | Patient age/sex | Appearance /procedure | Location | Treatment* | Resolution |
|------|----------------|-----------------|-----------------------|----------|------------|------------|
| 1    | Haught et al³  | 75 y/woman      | 3 mo/post bilateral knee replacement | Bilateral | Compression wraps and topical steroids | No change |
| 2    | Haught et al³  | 76 y/woman      | 8 mo/post shoulder replacement | Left shoulder | Compression wraps and topical steroids | No change |
| 3    | Gómez-Bernal et al⁴ | 81 y/woman | 8 mo/total knee replacement | Right knee | Compression wraps and hydroxychloroquine, 200 mg/d | Partial |
| 4    | Current patient | 73 y/man        | 12 mo/total knee replacement | Left knee | IL polidocanol 1% x 2 sessions, 3 wk apart | Complete |

*All prosthetic joints were completely functional with full range of motion before and after applied treatment.