Hand fat grafting complicated by abscess

A case of a bilateral hand abscess from bilateral hand fat grafting

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Introduction

Fat grafting has become popular in plastic surgery and dermatology where it is often used as physical filler, for scar prevention, or as a source of stem cells [7, 10]. Although complications are rare [1, 8], they have been reported in both settings. Complications of liposuction with autologous fat grafting include edema, fat necrosis, abdominal viscera perforation, hemorrhage, pulmonary embolism, hematoma, necrotizing fasciitis, abscess, and sepsis [3–6, 8, 9]. In this report, we present a case in which autologous fat grafting used as a cosmetic procedure resulted in bilateral hand abscesses.

Case

An 82-year-old female presented to the emergency room with fever, chills, and increasing pain and erythema in both hands for 4 days. Twenty days prior to her presentation in the emergency room, the patient reported she had undergone a cosmetic autologous fat grafting to the dorsum of both her hands with fat from her inguinal region by a local dermatologist in his office. The fat was harvested manually under tumescent anesthesia from the buttock. The syringes were inverted and the

supernatant allowed to separate, and then decanted. The fat was transferred sterilely to administration syringes. The fat was then placed through stab incisions via sterile fat transfer cannula. The patient reported that a few days following the procedure, she had called her dermatologist to report erythema and pain. At that time, her dermatologist started her on clarithromycin 250 mg by mouth twice daily for 1 week. She was given a second 1-week course of clarithromycin after she failed to improve. Three days prior to her admission her dermatologist aspirated fluid from the dorsum of her hands and her dose of clarithromycin was increased to 500 mg twice daily. Three days later, she presented to the emergency room with fever and chills, reporting increasing erythema and pain in both hands over the last 3 days despite the increase in the oral antibiotic dosage. She presented with enlarging masses on the dorsum of both hands with streaking erythema. The emergency room initiated intravenous antibiotics and she was admitted to the hospital. We were consulted after admission to the hospital.

The patient reported allergies to meperidine and sulfa. Her medications included timolol, transdermal estradiol, pregabalin, escitalopram, ezetimibe, simvastatin, temazepam, clonazepam, and oxybutynin chloride. Her medical history and surgical history were significant for hypertension, knee surgery, multiple cosmetic procedures. She denied alcohol and tobacco use.

Her physical exam consisted of a temperature of 38.3 degrees Celsius. She had fluctuant erythematous, warm masses on the dorsum of her bilateral hands. She had tenderness over the swelling. Her forearm had streaking lymphangitis. She was neurovascularly intact distally. She had no pain with range of motion of the wrist or

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fingers. She had no tenderness on the volar surface of the hands or fingers. She had two plus radial pulses. She had warm and well-perfused fingers with less than three second capillary refill. Her sensation was intact to light touch in all five fingers bilaterally. She had decreased range of motion of the fingers (Fig. 1).

Imaging studies including an X-ray demonstrated significant soft tissue swelling but no subcutaneous gas or signs of osteomyelitis. Ultrasound demonstrated positive fluid collections on the dorsum of the hands consistent with fat necrosis or purulence (Figs. 2 and 3).

Laboratories demonstrated a white blood cell count of $14.0 \text{ K}/\mu\text{l}$, a CRP of 52.2 mg/l and an erythrocyte sedimentation rate of 46 mm/h .

She was taken emergently to the operating room for incision and drainage of the bilateral hand abscesses. An incision was made over the center of each area of swelling in line with the third ray on the dorsum of the hand. The abscesses contained significant amounts of purulent foul-smelling brownish-yellow fluid. Each wound was irrigated with 3 l of normal saline. The cavity was completely evacuated.

Fig. 1 Pre-operative erythematous masses on the dorsum of patient's bilateral hands

Fig. 2 Ultrasound of the dorsum of the left hand demonstrated positive fluid collections outlined by the four yellow marks

uated. The cavity involved nearly the entire dorsum of the hand. The wound was packed with iodoform packing. Cultures were obtained from both wounds. Cultures were sent for aerobic, anaerobic, acid-fast bacteria and fungal cultures.

Post-operatively, she was admitted and underwent three times daily dressing changes. Forty-eight hours later, she

Fig. 3 Ultrasound of the dorsum of the right hand demonstrated positive fluid collections outlined by the four yellow marks

underwent repeat irrigation and debridement of her bilateral hands. During her hospital stay, she received intravenous vancomycin and piperacillin/tazobactam. Cultures were no growth from the abscess for aerobic, anaerobic, acid-fast bacteria and fungal pathogens.

Eight days after admission, the erythema had resolved and the patient was discharged home with home health nursing for dressing changes. Oral empiric antibiotics were continued with amoxicillin and clavulanate and doxycycline for 10 days.

Six weeks after her discharge she underwent elective closure of the wound. After 3 months her wounds were completely healed and she had full function of the hand (Fig. 4).

Discussion

Fat grafting is a popular procedure with multiple applications in cosmetic and reconstructive procedures. The

use of fat grafting into the dorsum of the hand for cosmetic improvement of age related changes is gaining popularity [2]. Complications of liposuction with autologous fat grafting include edema, fat necrosis, abdominal viscera perforation, hemorrhage, pulmonary embolism, hematoma, necrotizing fasciitis, abscess, and sepsis [3–6, 8, 9]. This case report highlights a significant complication, which should be recognized and addressed expeditiously.

Although the infection appeared to be clinically severe, no bacteria were isolated in culture. The lack of microbiological confirmation may have been due to the patient use oral antibiotics prior to hospitalization and the administration of intravenous antibiotics in the emergency room.

One could argue that the response was an inflammatory response to fat necrosis and not infectious. The swelling could have been a reaction to fat necrosis. Although the cultures did not confirm the diagnosis, the clinical picture of streaking lymphangitis and fever was more consistent with an infection. The rapid response to the drainage and the antibiotics also points more toward an infectious process. Nonetheless, the treatment for both processes should be urgent surgical debridement because although an inflammatory response to fat necrosis may respond to corticosteroids if the diagnosis of infection is missed the clinical repercussions to the patient could be severe. Complications are uncommon after fat grafting procedures. Infection is one of the more severe of the possible complications.

The incidence of cosmetic procedures such as hand fat grafting has been increasing. Physicians should be aware of these procedures so they can help prevent further complications and expedite diagnosis.

Fig. 4 Three months post-operative incision revealing a well-healed scar

Conflict of interest The authors declare that they have no conflict of interest.

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