Formosan Journal of Surgery (2015) 48, 17–20

Available online at www.sciencedirect.com

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CASE REPORT

Ankle osteoarthritis: A rare complication after free fibular flap harvesting

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Received 25 March 2014; received in revised form 16 April 2014; accepted 6 May 2014
Available online 18 March 2015

KEYWORDS
ankle osteoarthritis;
free fibular flap

Summary Free fibular osteocutaneous flaps are used worldwide for mandibular defect reconstruction after tumor ablation of head and neck cancer. Although these flaps have generally been accepted as suitable sources of vascularized bone grafts, donor-site morbidity remains a concern. Ankle osteoarthritis (OA) is a rarely reported complication after free fibular flap harvesting. We report a case of rapidly progressed ankle OA after fibular flap harvesting and the experience in managing it. A 46-year-old obese woman was diagnosed to have floor of mouth cancer, T4aN1M0. After wide excision of the tumor, a 6.5 cm segmental mandibular defect was reconstructed using a free fibular osteocutaneous flap. The flap was harvested from the right leg, preserving 6.5 cm of the distal fibular bone. The patient was discharged 2 months later and could walk without assistance. Eight months after the patient was discharged, she complained of severe pain in the right ankle, especially while ambulating. Plain radiographs showed osteoarthritic changes in her right tibiotalar joint. Because of progressive debilitating pain, she underwent arthrodesis of the right ankle. After surgery, she was advised to lose weight, after which her clinical symptoms subsided. Tibiotalar OA is a rare complication after the harvesting of a free fibular flap. Morbid obesity may be a crucial factor predisposing patients to this complication. Arthrodesis and reduction of body weight could help patients return to daily activity and ambulation.

Conflicts of interest: All authors declare no conflicts of interest.

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http://dx.doi.org/10.1016/j.fjs.2014.05.005

1. Introduction

Free fibular osteocutaneous flaps are used worldwide for mandibular defect reconstruction after tumor ablation of head and neck cancer. Although these flaps have generally been accepted as suitable sources of vascularized bone grafts, donor-site morbidity remains a concern.[1,2] The complications reported in previous studies included limited great toe flexion, ankle instability, ankle stiffness, pain, and sensory deficits.[1,3,4] Some authors have suggested that intramuscular perforator dissection could prevent toe flexion, and the length of the residual portion of the distal part of the fibula has a crucial effect on the long-term stability of the ankle.[1,4,5] In these studies, osteoarthritis (OA) was a complication that has rarely been mentioned. Only one study mentioned OA as a donor site morbidity after fibular flap harvesting.[6] In the present report, we describe a woman with morbid obesity [body mass index (BMI): 48.4 kg/m^2] who developed ankle OA of the donor leg after fibular flap harvesting.

2. Case report

A 46-year-old-woman with underlying hypertension, congestive heart failure, and diabetes mellitus (DM) for 5 years, was diagnosed with floor of mouth cancer, T4aN1M0, in 2011. She was prescribed oral hypoglycemic agents for DM and the blood glucose level was under control at approximately 80—110 mg/dL. The glycated hemoglobin level was 4.4%. No history of DM-related foot complication was noted. The patient initially presented with mass and chronic oral ulceration. She was found to be morbidly obese, with a BMI of 48.4 kg/m^2 (weight, 109 kg; height, 150 cm). Preoperatively, the cancer was found to have invaded the mandible, but without involvement of the cheek skin. She underwent wide excision of the tumor and dissection of the regional lymph node. The defect included the right floor of mouth, right hemitongue, and a 6.5 cm right mandibular bone defect. We harvested a free osteocutaneous fibular flap from her right leg together with a 15 cm $\times$ 6 cm skin paddle. A 6.5-cm bone was preserved in the distal fibula. The donor site was closed through partial wound closure using a split-thickness skin graft. In the follow-up period, neither wound problems nor delayed wound healing were observed. In the initial 8 months of follow-up, she complained of numbness in the donor site of the right leg, but experienced no pain or difficulty in ambulation. However, the pain in the right ankle developed and progressed rapidly. When the pain became unbearable, she presented to our orthopedics outpatient clinic. A radiograph of the right ankle (Fig. 1) showed osteophyte formation, joint space narrowing, and ankle joint subluxation. OA was diagnosed and surgical intervention was suggested. The patient underwent arthrodesis of the right ankle 2 weeks later (Fig. 2). She was advised to lose weight. In the 7-month follow-up period after arthrodesis, her BMI decreased to 33. Her ankle pain had subsided, and she was able to ambulate well without the assistance of walking devices.

3. Discussion

Many studies have discussed postoperative donor site complications after free fibular flap harvesting. In previous studies[1,3,4] leg weakness accounted for 8—10% of the complications, limited great toe flexion accounted for 9%, ankle instability accounted for 4—10%, ankle stiffness accounted for 2—41%, and pain and sensory deficits accounted for 11.8—28%. In these studies, some suggestions were proposed for preventing these complications. For ankle stability, some authors suggested that a longer distal length may increase ankle stability after surgery.[1,4,5] Some

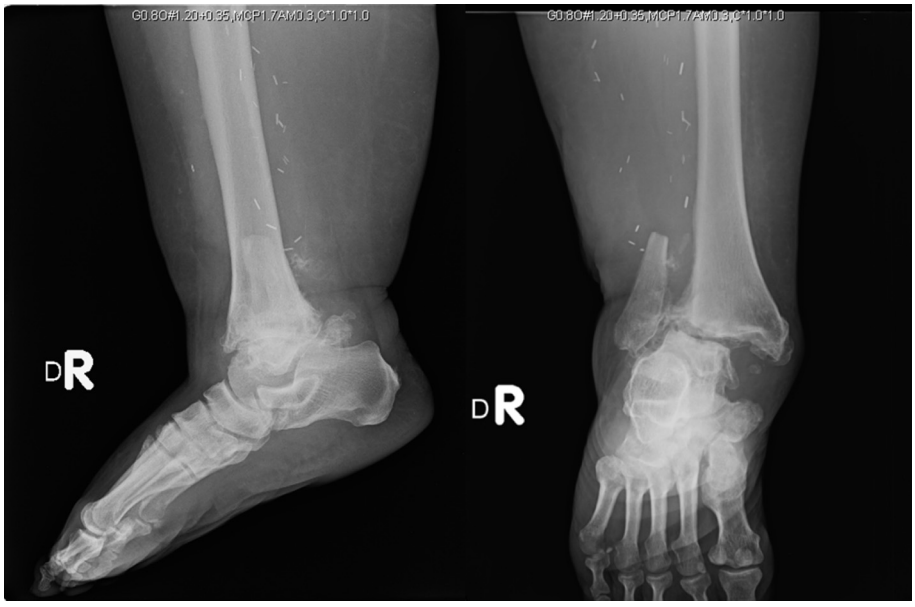

Figure 1 The right ankle plain film shows osteophytes formation, joint space narrowing, and ankle joint subluxation (11 months after free fibular flap surgery).