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journal homepage: www.casereports.comWound dehiscence after total knee arthroplasty[☆]

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ABSTRACT

INTRODUCTION: Wound dehiscence is one of the most common complications of surgical ulcer, involving the breaking open of the surgical incision along the stitch. This condition is a severe complication of total knee arthroplasty.

PRESENTATION OF CASE: We report a case of a 59-year-old female patient with diabetes who underwent a total knee arthroplasty in which all layers of wounds were dehiscence and prosthetic was exposed.

DISCUSSION: Wound dehiscence is a complication after total knee arthroplasty especially in diabetic patient. So, patients with diabetes more susceptible to development of wound dehiscence following total knee arthroplasty and should be followed particularly postoperatively care.

CONCLUSION: Postoperative care after knee replacement should be more considered in diabetic patients. Finally the patient was successfully treated with irrigation and debridement (I&D) and polyethylene insert exchange.

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1. Introduction

Total knee arthroplasty (TKA) is a common orthopedic surgery. Primary wound healing is critical for the success of any total knee arthroplasty. The prevalence of wound complications in surgical joint replacement is 0.33% to 50% [1,2]. Wound-healing problems such as wound dehiscence occur after primary total knee arthroplasty, but the incidence of this problems post TKA requiring further surgery is low [3,4]. Wound dehiscence is a severe complication of total knee arthroplasty.

The algorithm was used to determine the grade of wound failure (Grades 0 to IV) is shown in the Table 1 [5].

There are several risk factors for wound dehiscence including intraoperative, postoperative factors and patient-specific. Intra operative factors include the location of the incision; the creation of large laterally based skin flaps, which have inferior blood supply; and poor soft-tissue handling. Also, many factors are responsible for failed wound healing, such as age, peripheral vascular disease, infection, obesity, smoking, patient's inadequate nutrition, increased pressure applied to the wound edges (generated by straining or lifting, coughing, sneezing, vomiting), corticosteroids chronic usage, previous scarring [6–8]. Obesity and diabetes melli-

Table 1
classification of wound failure.

Grade of wound failure	Description
Grade 0	Simple wound erythema only without any breakdown of the skin.
Grade I	Skin necrosis and breakdown of the superficial wound without involvement of the deep layers or the presence of a wound sinus
Grade II	More extensive superficial necrosis associated with a wound sinus into the joint but without deep wound breakdown.
Grade III	Deep wound dehiscence with a sinus but little or no exposure of the prosthesis on inspection
Grade IV	Deep dehiscence with obvious exposure of the prosthesis.

tus are significantly associated with postoperative wound-healing complications and the need for reoperation for these wound complications after total knee arthroplasty [9]. In this report, we present a case of wound dehiscence after TKA, with diabetes mellitus.

The work in this case has been reported in line with the SCARE criteria [10].

1.1. Case report

The patient is a 59 years old obese woman with diabetes that undergone total knee replacement. There was diabetic disease in the family history of the patient, and the patient used drugs that controlled diabetes. After 3 days of intravenous antibiotics and walking with walker, was discharged from hospital. After approx-

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Fig. 1. Wound dehiscence after total knee arthroplasty.

imately three weeks, the patient tried to walk without a cane but suddenly the patient fell.

During the falls, all layers of wounds were dehiscence (grade IV) and prosthetic was exposed. Due to the opening of the knee joint (Fig. 1), the patient was sent immediately to the operating room, and as an acute infection was treated with irrigation and debridement (I&D). Then isolated tibial polyethylene insert exchange (ITPIE) and the standard suture was used in this case. Procedure was performed by 2 orthopedic surgeons (M.A.S and H.R.A). To prevent infection, intravenous antibiotics for 2 weeks were prescribed. The patient was undergoing daily physiotherapy and knee immobilizer was administered. ESR and CRP were also checked and when laboratory tests were normal, the patient was discharged. The patient and her companions had the necessary cooperation in following instructions and cares. After 6 months of follow up, the patient was satisfied with the treatment and new knee prosthesis.

2. Discussion

In post-operative knee replacement, sitting and standing balance may be impaired and about one to three falls per 1000 patient days accrue among in patients after orthopedic surgery [11]. Wound dehiscence and Prosthetic exposure is a severe complication of total knee arthroplasty. The factors identified that are associated with increased risk of wound dehiscence in knee arthroplasty, including diabetes and obesity [12,13]. Researchers have mentioned that any of the wound complications (drainage, hemarthrosis, skin necrosis, and dehiscence) potentially related to diabetes [9,13,14]. So, Patients with diabetes more susceptible to development of wound dehiscence following total knee arthroplasty and should be followed particularly postoperatively care [9].

Diabetic patients need to some help at home after discharge. During recovery at home, patients should pay attention to post-operative care tips, and follow guidelines after surgery to take care

of their wound to prevent infection and wound dehiscence. As long as the recovery was complete, the use of walking aids to prevent falls in these patients is necessary.

3. Conclusion

One of the complications of total knee arthroplasty is wound dehiscence that its occurrence more frequent in patients with diabetes. Postoperative care after knee replacement should be more considered in these patients. Therefore, it is better that patient with diabetes after arthroplasty following by more critical care such as the use of assistive devices.

Conflict of interests

All authors declare that they have no conflicts of interest to disclose.

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Ethical approval

Not applicable.

Consent

Written and signed consent from the patient to publish a case-report has been obtained.

Author contributions

Mohammad Ali Sazegari: surgeon.
 Fateme Mirzaee: drafted the manuscript.
 Fateme Bahramian: drafted the manuscript.
 Zohreh Zafarani: reviewed the manuscript.
 Hamidreza Aslani: submitting and corresponding author.
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References

- [1] K. Vince, D. Chivas, K.P. Droll, Wound complications after total knee arthroplasty, *J. Arthroplasty* 22 (4) (2007) 39–44.
- [2] V.P. Patel, M. Walsh, B. Sehgal, C. Preston, H. DeWal, P.E. Di Cesare, Factors associated with prolonged wound drainage after primary total hip and knee arthroplasty, *J. Bone Joint Surg.* 89 (1) (2007) 33–38.
- [3] S. Garbedian, A. Sternheim, D. Backstein, Wound healing problems in total knee arthroplasty, *Orthopedics* 34 (9) (2011) e516–e518.
- [4] D.D. Galat, S.C. McGovern, D.R. Larson, J.R. Harrington, A.D. Hanssen, H.D. Clarke, Surgical treatment of early wound complications following primary total knee arthroplasty, *J. Bone Joint Surg.* 91 (1) (2009) 48–54.
- [5] J.H. Laing, K. Hancock, D.H. Harrison, The exposed total knee replacement prosthesis: a new classification and treatment algorithm, *Br. J. Plast. Surg.* 45 (1) (1992) 66–69.
- [6] R. Wong, P. Lotke, M. Ecker, Factors influencing wound healing after total knee arthroplasty, *Orthop. Trans.* 10 (1986) 497.
- [7] S.P. England, S.H. Stern, J.N. Insall, R.E. Windsor, Total knee arthroplasty in diabetes mellitus, *Clin. Orthop.* 260 (1990) 130–134.
- [8] D.A. Dennis, Wound complications in total knee arthroplasty, *Orthopedics* 20 (9) (1997) 837–840.
- [9] D.D. Galat, S.C. McGovern, D.R. Larson, J.R. Harrington, A.D. Hanssen, H.D. Clarke, Surgical treatment of early wound complications following primary total knee arthroplasty, *J. Bone Joint Surg. Am. Vol.* 91 (1) (2009) 48–54.

- [10] R.A. Agha, A.J. Fowler, A. Saeta, I. Barai, S. Rajmohan, D.P. Orgill, et al., The SCARE statement: consensus-based surgical case report guidelines, *Int. J. Surg.* 34 (2016) 180–186.
- [11] D.B. Ackerman, R.T. Trousdale, P. Bieber, J. Henely, M.W. Pagnano, Postoperative patient falls on an orthopedic inpatient unit, *J. Arthroplasty* 25 (1) (2010) 10–14.
- [12] C.L. Cetrulo Jr., T. Shiba, M.T. Friel, B. Davis, R.F. Buntic, G.M. Buncke, et al., Management of exposed total knee prostheses with microvascular tissue transfer, *Microsurgery* 28 (8) (2008) 617–622.
- [13] R.M. Patel, M. Cayo, A. Patel, M. Albarillo, L. Puri, Wound complications in joint arthroplasty: comparing traditional and modern methods of skin closure, *Orthopedics* 35 (5) (2012) e641–646.
- [14] J.S. Hwang, S.J. Kim, A.B. Bamne, Y.G. Na, T.K. Kim, Do glycemc markers predict occurrence of complications after total knee arthroplasty in patients with diabetes? *Clin. Orthop.* 473 (5) (2015) 1726–1731.

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