

**Table 2.** Postoperative golf performance.<sup>a</sup>

	PRC (n=12)	FCA (n=25)	p-value
Return to golf	10	20	0.813
Timing of return to golf (months)			
In any capacity	8 (3)	8 (2)	0.813
With minimal pain	11 (2)	11 (3)	0.710
Steady state	11 (2)	11 (3)	1.000
Rounds played per year	37 (31)	35 (29)	0.836
Hours practiced per year	28 (14)	31 (18)	0.647
Level of golf performance compared to preoperatively, if returned			0.394
Worse	0	0	—
Same	2	7	—
Better	8	13	—
Change in golf level from preoperatively, if returned (scale 1–10; 1 worse, 10 better)	8 (1)	8 (2)	0.234
Expectations for returning to golf met (scale 1–10), all patients	7 (1)	6 (1)	0.025 <sup>b</sup>
Satisfaction with golf participation (scale 1–10), all patients	8 (2)	8 (2)	0.919

<sup>a</sup>Data are expressed as mean (standard deviation) or number.

<sup>b</sup>Denotes statistical significance based on alpha level 0.05.

PRC: proximal row carpectomy; FCA: four corner arthrodesis.

significant differences with regard to gender, SLAC/SNAC arthritis, cases occurring on the dominant side and remaining factors of preoperative golf participation (typical score on par-72 course, rounds played and hours practiced per year) ( $p > 0.05$ ).

In conclusion, this study found similar return to golf results between PRC and FCA. Quite encouraging, is that a majority of patients who returned to golf felt they were performing better and no patients felt they were performing at a worse level than before surgery. However, while an approximately 80% rate of return to golf appears encouraging, it also means that up to 20% of previously avid golfers were unable to return postoperatively and therefore had worse golf participation, without major complications to explain their inability to return. Our post hoc analysis suggests that younger patients and those with established handicaps can be advised that they may have the highest likelihood of returning to golf. Surgeons can utilize this information to set appropriate patient expectations.

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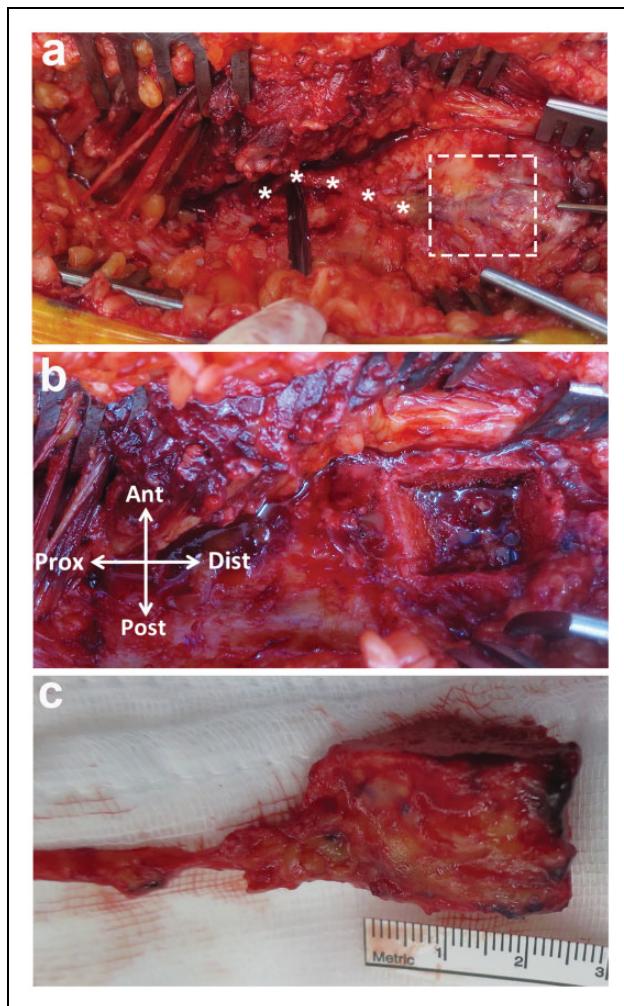
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## Vascularized medial femoral condyle flap harvest adjacent to total knee arthroplasty: a case report

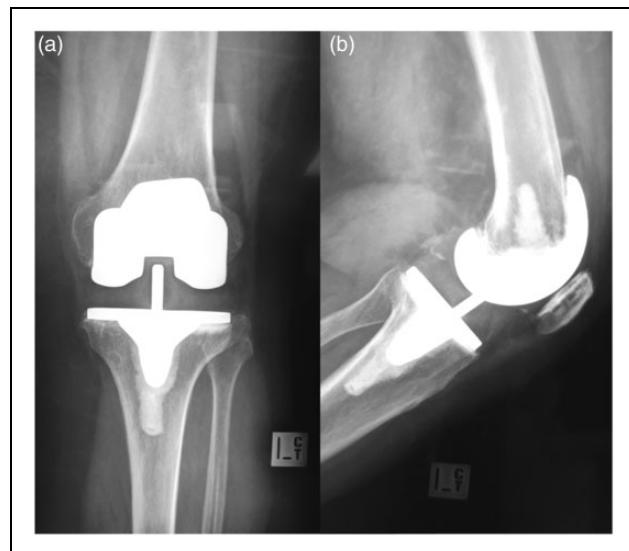
Dear Editor,

A 58-year-old lady presented with a painful thumb base in her dominant right hand, despite two previous operations. Initial trapeziectomy and ligament reconstruction tendon interposition had been performed for trapeziometacarpal arthritis. This subsequently failed and so thumb to index metacarpal arthrodesis with iliac crest corticocancellous graft was attempted (the senior author's preferred salvage operation). Revision arthrodesis with vascularised bone graft was therefore planned. Neither iliac crest was available for a vascularised graft as the contralateral iliac crest had been harvested for the original intermetacarpal fusion attempt and the ipsilateral iliac crest had been harvested by another surgeon for an unrelated orthopaedic procedure. A free vascularised medial femoral condyle (MFC) bone flap was therefore decided to offer the best chance of union, but it was observed she had previously undergone bilateral knee arthroplasties.



**Figure 1.** (a) Medial femoral condyle (MFC) exposed after reflecting the vastus medialis, the pedicle (in asterisks) and harvest site identified. (b) MFC after flap harvest. (c) Bone flap after harvest.

The proposed surgery was discussed with the patient's knee surgeon who confirmed that there was a minimal risk to the total knee arthroplasty from the harvest per se. Concern that soft tissue dissection during the previous knee surgery could have disrupted the vascular anatomy of the MFC, a pre-operative ultrasound evaluation was performed, confirming that the descending geniculate artery was present (diameter 2 mm) with branches reaching the cortex of the distal femur. A medial longitudinal approach to the contralateral left knee was undertaken, reflecting the vastus medialis muscle anteriorly to expose the MFC (Figure 1a). Care was taken not to breach the joint capsule and the prosthesis was not encountered, allowing the harvest of a good quality 20 mm × 20 mm corticocancellous block (Figure 1c). The void (Figure 1b) was then filled with bone graft substitute to reduce the risk of



**Figure 2.** Postoperative plain radiographs of patient's donor knee: anteroposterior view (a) and lateral view (b).

periprosthetic fracture. Following fixation and microvascular anastomosis, the arthrodesis was protected in a thumb spica cast, then static splint for 10 weeks. The patient was allowed to weight bear as tolerated on her operated left knee, under supervision of the physiotherapists.

By 6 months postoperatively, radiological union of the arthrodesis was confirmed with plain radiographs and computed tomography. The thumb was stable and pain free with improved function and strength. No complications occurred with the total knee replacement, as confirmed by plain radiographs (Figure 2) and her Oxford Knee Score was 43/48 bilaterally.

Sakai et al. (1991) first described the MFC bone flap to treat challenging non-unions of the upper limb. Since then, its use has gained wide appeal for the treatment of avascular necrosis, non-union, bone defects and arthrodesis procedures in the hand and wrist. Advantages of the MFC donor site include a consistent and long pedicle and the ability for surgeons to harvest a large block of corticocancellous bone. The reported donor site morbidity is low, with few complications and preservation of good overall knee function (Rodríguez-Vegas and Delgado-Serrano, 2011; Weitgasser et al., 2016). Although harvesting larger blocks of bone has been described (Kumta et al., 2017), in this case we minimized the size that was harvested and also filled the void with bone graft substitute in order to reduce the risk of periprosthetic complications. We also used pre-operative ultrasound evaluation to confirm that the vascular pedicle was undamaged by total knee arthroplasty.

This case report illustrates that if no suitable alternatives are available, careful planning and meticulous attention to detail allows a free vascularized MFC bone flap to be successfully harvested adjacent to a total knee arthroplasty without compromise to the quality of the flap harvested and without any complication to the total knee arthroplasty. With the increasing incidence of knee arthroplasty being performed, this option may become more necessary in the future.

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**Ethical approval** Ethical approval was not sought for this retrospective case report.

**Informed consent** Informed consent for non-identifiable patient information and images to be published was provided by the patient.

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