



Case studies

Rehabilitation and return to sport after bilateral open surgery for femoroacetabular impingement in a professional ice hockey player: A case report



Nicola C. Casartelli ^{a, b, *}, Mario Bizzini ^a, Nicola A. Maffiuletti ^a, Romuald Lepers ^b, Michael Leunig ^c

^a Neuromuscular Research Laboratory, Schulthess Clinic, Zurich, Switzerland

^b INSERM U1093 – Cognition, Action and Sensory Plasticity, University of Burgundy, Dijon, France

^c Hip Service, Schulthess Clinic, Zurich, Switzerland

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ABSTRACT

Study design: Case report.

Background: The aim of this case report was to describe the rehabilitation and return to sport of a professional ice hockey player with symptomatic femoroacetabular impingement (FAI) after bilateral open hip surgery.

Case description: A 21-year-old professional ice hockey player with symptomatic FAI underwent bilateral surgical hip dislocations within a 6-week time period. After the second surgery (right hip), he experienced right hip pain due to iliotibial band dehiscence, which required additional revision surgery. The athlete underwent a standardized rehabilitation protocol. Hip muscle strength was objectively assessed during rehabilitation.

Outcomes: Iliotibial band dehiscence did not allow the athlete to increase ipsilateral hip abductor strength. This prolonged the rehabilitation period for 12 weeks. The athlete returned to training on the ice without physical contact and to competitive matchplay after 7 and 8 months, respectively.

Discussion: This case report showed that iliotibial band dehiscence occurred after open hip surgery and delayed the return to sport of this athlete. Standardized rehabilitation following bilateral open hip surgery was however successful for the return to sport of this professional ice hockey player with bilateral symptomatic FAI.

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1. Background

Femoroacetabular impingement (FAI) has become a commonly reported cause for overuse injury in ice hockey players (Philippon, Weiss, Kuppersmith, Briggs, & Hay, 2010; Stull, Philippon, & LaPrade, 2011). Indeed, it seems that the biomechanics of skating places the hip in some at-risk positions (e.g., hip flexion and internal rotation at the end of the recovery phase or hip abduction and external rotation during the push-off phase of the hockey

stride) (Stull et al., 2011). These hip positions – mainly in combination with the presence of bony hip abnormalities – can favor contacts between the femoral head–neck and the acetabulum. If the bony abnormality is located at the proximal femur, it is known as a “cam deformity” (Ganz et al., 2003). In contrast, if the bony deformity is located at the acetabulum, it is known as a “pincer deformity”. However, in the majority of cases the two types of deformities are present simultaneously (i.e., “combined deformity”) (Allen, Beaulé, Ramadan, & Doucette, 2009). Over time, the repetitive and vigorous contacts between the femoral head and the acetabulum may lead to chondrolabral injuries within the hip joint and in turn, pain, that can eventually impair the performance on the ice.

Open surgical hip dislocation was the first technique described for managing symptomatic FAI (Ganz et al., 2001). More recently, arthroscopic procedures have significantly improved to the point

* Corresponding author. Neuromuscular Research Laboratory, Schulthess Clinic, Lengghalde 2, 8008 Zurich, Switzerland. Tel.: +41 (0)44 385 79 71; fax: +41 (0)44 385 75 90.

E-mail addresses: nicola.casartelli@kws.ch (N.C. Casartelli), mario.bizzini@kws.ch (M. Bizzini), nicola.maffiuletti@kws.ch (N.A. Maffiuletti), romuald.lepers@u-bourgogne.fr (R. Lepers), michael.leunig@kws.ch (M. Leunig).

that their postoperative clinical outcomes are nowadays comparable to those reported for open procedures (Papalia et al., 2012). Nevertheless, open hip surgery provides the unique advantage of allowing better access to some lesions and bony deformities that can be particularly difficult to treat arthroscopically (Hellman et al., 2013; Naal, Miozzari, Wyss, & Nötzli, 2011). Thus, open procedures are nowadays still frequently used to treat symptomatic FAI in young adults (Bedi & Kelly, 2013; Naal, Miozzari, Schär, Hesper, & Nötzli, 2012; Zingg et al., 2013) as well as in professional athletes (Bizzini, Nötzli, & Maffiuletti, 2007; Naal, Miozzari et al., 2011). Open hip surgery is however claimed to result in a higher incidence of postoperative complications (Botser, Smith, Nasser, & Domb, 2011) and longer rehabilitation compared to arthroscopy (Zingg et al., 2013) that could potentially delay the return to sport of athletes (Gaskill & Philippon, 2012). Both of these issues are usually related to the trochanteric osteotomy or to other surgery-related factors. Indeed, dehiscence of the iliotibial band (IT), which is incised during surgery to access the hip joint capsule (Ganz et al., 2001), has been reported to sometimes occur after surgical hip dislocation (Naal et al., 2012). Furthermore, to facilitate the complete healing of the trochanteric osteotomy, surgical hip dislocation requires the patient to walk longer with partial weight bearing compared to hip arthroscopy (Gaskill & Philippon, 2012). In addition, some patients need both hips to be surgically treated due to the bilateral occurrence of symptomatic FAI (Bizzini et al., 2007; Naal et al., 2012; Naal, Miozzari et al., 2011). The increase in time with consecutive open hip procedures is of particular concern for professional athletes who require a shortened overall rehabilitation period in order to accelerate their return to sport.

Therefore, the aim of this case report was to describe the rehabilitation and return to sport of a professional ice hockey player after bilateral open hip surgeries for the treatment of symptomatic FAI, and after the occurrence of a minor postoperative complication (i.e., unilateral IT band dehiscence).

2. Case description

2.1. Clinical history

The patient was a 21-year-old professional ice hockey player in the second Swiss national league. The player's position was forward (wing). On January 16, 2012 he had his first consultation with the surgeon because of bilateral hip pain, which persisted since about one year. The symptoms mainly occurred after ice hockey training sessions and matches. On physical examination, the athlete demonstrated bilaterally reduced hip range of motion (ROM) (0° internal rotation and 95° flexion) and a positive flexion–adduction–internal rotation (FADIR) test (Tijssen, van Cingel, Willemsen, & de Visser, 2012), with the left hip being overall more painful than the right hip. In contrast, the flexion–abduction–external rotation (FABER) test was bilaterally negative (Tijssen et al., 2012). On anterior–posterior radiographs, the athlete presented with reduced femoral offset laterally (i.e., cam deformity) and an acetabular rim fracture (i.e., os acetabuli, pincer deformity) for both hips (Fig. 1A). On magnetic resonance images, the athlete had bilateral labral tears close to the os acetabula, between 9:00 and 11:00 at the left hip, and between 1:00 and 3:00 at the right hip. The athlete had normal femoral and acetabular version. Bilateral cartilage damage was suspected. Accordingly, the athlete received a diagnosis of bilateral symptomatic combined (cam prevalent) FAI.

Due to the suspicion of cartilage damages and the laterally localized cam deformity, the hip surgeon chose in agreement with the ice hockey team medical doctor and the athlete, to undertake surgical hip dislocation over hip arthroscopy. In addition, since both hips were symptomatic and since there was the necessity to shorten the recovery period and accelerate the return to sport of the athlete, it was decided to surgically treat both hips within a 6-week time period. The left hip was first operated on March 20, 2012 (Fig. 1B) and the right hip on May 3, 2012 (Fig. 1C). Surgeries were performed

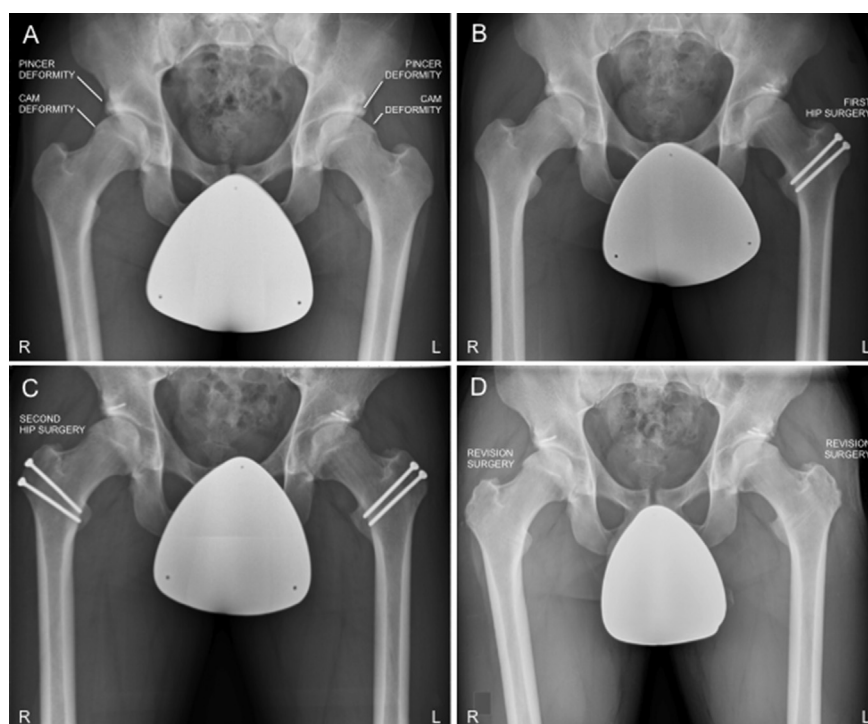


Fig. 1. Radiographic images of both hips preoperatively (A), after first open hip surgery (B), after second open hip surgery (C), and after bilateral revision surgeries (D). R, right; L, left.

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