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SHORT COMMUNICATION

LATARJET PROCEDURE FOR ANTERIOR SHOULDER INSTABILITY – THERE IS NO REASON TO ABANDON SCREWS

PROCEDURA LATARJET W NIESTABILNOŚCI PRZEDNIEJ BARKU – NIE MA POWODU ABY REZYGNOWAĆ Z UŻYCIA ŚRUB

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ABSTRACT

Introduction

Latarjet is a widely performed procedure for anterior shoulder instability. It can be performed open or arthroscopic and with conventional screw fixation (SF) or suture button (SB). The aim of this review is to compare the two techniques to answer the question: is there any reason to abandon the screws?

Results

Traditional open Latarjet with SF has follow-up longer than 20 years and recurrence rate reported on 5.9% with rate of developing osteoarthritis (OA) reported on 20%, but only 1.5% of graft pseudoarthrosis. Arthroscopic Latarjet in mid-term FU resulted in no recurrence of dislocations and 93.5% return to sport rate. However, 10 of 64 (15.6%) patients had revision surgery, most common removal of prominent screw.

Short-term results after arthroscopic SB proved efficiency of this type of fixation. Recurrence of instability after SB fixation was observed in 3% (4 of 136), healing rate was 95% (115 of 121 patients) and 3 of 136 patients required revision procedure, because of instability recurrence.

Conclusion

Clinically SB demonstrated similar functional outcome and ROM when compared to SF with the potential benefit of lower rates of graft resorption and hardware related complications. However, rate of instability recurrence was higher for SB technique.

Keywords: shoulder, instability, Latarjet

STRESZCZENIE

Wstęp

Latarjet jest powszechnie wykonywanym zabiegiem w niestabilności przedniej barku. Może być wykonywany w sposób otwarty lub artroskopowy oraz z zastosowaniem konwencjonalnej fiksacji śrubami (SF) lub przyciskiem szwów (SB). Celem tego przeglądu jest porównanie tych dwóch technik, aby odpowiedzieć na pytanie: czy istnieje powód, aby zrezygnować ze śrub?

Wyniki

Tradycyjny otwarty Latarjet z SF ma ponad 20-letnią obserwację i wskaźnik nawrotów 5,9%, wskaźnik rozwoju choroby zwyrodnieniowej stawów (OA) 20%, ale tylko 1,5% pseudoartrozy

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przeszczepu. Artroskopia Latarjet w średnim okresie FU nie spowodowała nawrotu zwichnięć i 93,5% powrotu do sportu. Jednak u 10 z 64 (15,6%) pacjentów wykonano operację rewizyjną, w której najczęściej usuwano prominentną śrubę.

Krótkoterminowe wyniki po artroskopowym SB potwierdziły skuteczność tego typu mocowania. Nawrót niestabilności po fiksacji SB obserwowano u 3% (4 ze 136), wskaźnik wyleczenia wyniósł 95% (115 ze 121 pacjentów), a 3 ze 136 pacjentów wymagało zabiegu rewizyjnego z powodu nawrotu niestabilności.

Wnioski

Klinicznie SB wykazał podobny wynik funkcjonalny i ROM w porównaniu z SF z potencjalną korzyścią w postaci niższego wskaźnika resorpcji przeszczepu i powikłań związanych z osprzętem. Jednakże odsetek nawrotów niestabilności był wyższy w przypadku techniki SB.

Słowa kluczowe: bark, niestabilność, Latarjet

Latarjet is a widely performed procedure for anterior shoulder instability. It can be performed open (Latarjet *et al.* 1954) or arthroscopic (Lafosse *et al.* 2007) and with conventional screw fixation (SF) or suture button (SB). The traditional method of fixation of the coracoid process graft to the anterior glenoid wall was 2 metal screws (Walch *et al.* 2000). This method of fixation ensured good bone compression, good graft stability, and a very low percentage of pseudoarthrosis both in arthroscopic and open treatment (Kordasiewicz *et al.* 2018; Matais *et al.* 2016). However, Latarjet procedure, either open or arthroscopic remains difficult, with a steep learning curve and a high rate of complication (Gupta *et al* 2015; Shah *et al.* 2012). Many of these complications like hardwere failures, screw malpositioning or pain because of humeral head contact with screw are related to screw fixation. Trying, on the one hand, to maintain the effectiveness of shoulder instability treatment by the Latarjet procedure, and on the other hand, to reduce the number of complications, Boileau *et al* proposed a graft fixation technique using endobuttons (Boileau *et al* 2016). This technique, thanks to the avoidance of screws and the risk of osteoarthritis development associated with screw malposition, seems to be an interesting alternative. However, it is a relatively new technique, and the results published so far do not show clear benefits from its use. The aim of this study is to base on the current literature answer the question: should we abandon the screws for graft fixation of Latarjet technique?

Outcome after suture button fixation technique

First study with outcome after SB fixation on 76 patients in follow-up (FU) mean 14 months (range 6–24) was published in 2016 (Boileau *et al.* 2016). This study proved safety of this technique and showed successful rate (stabile shoulder) of 98.7% (75 of 76 patients). Healing after this type of fixation resulted in 91% (69 of 76 patients). Subsequently, 3 years later study on 136 patients was published (Boileau *et al.* 2019) which proved efficiency of this type of fixation on larger group of patients and longer FU (mean 26 months, range 24–47 months). Recurrence of instability after SB fixation was observed in 3% (4 of 136), healing rate was 95% (115 of 121 patients) and 3 of 136 patients required revision procedure, because of instability recurrence. Clinically, no restriction of range of motion was published 93% (105 of 113) patients had returned to sport and 70% of them returned at the same or higher level within 1 year after surgery. In 2022 to promote better healing of the coracoid bone block graft, special mechanical tensioning device was introduced (Boileau *et al.* 2022). However,

results after introducing this device are rather incomprehensible, especially compared to results published previously.

Outcome after screw fixation technique

It was proven that SF Latarjet procedure effectively reduce recurrent instability rate in long term FU even in case of significant glenoid bone loss and large Hill-Sachs lesion (Mizuno *et al.* 2014, Walch *et al.* 2000). In FU longer than 20 years recurrence rate was 5.9% and rate of developing osteoarthritis (OA) was 20%, but OA grade 3 was presented in 8.8%, grade 2 in 5.9% and there wasn't any case of OA grade 4. What's more, the most often OA was associated with older age during surgery and too lateral position of the graft what should be considered as surgical mistake. Pseudarthrosis of the coracoid graft occurred only in 1 shoulder (1.5%).

Mid-term (mean FU 74.6 months) results of arthroscopic Latarjet with SF was also very satisfied (Dumont *et al.* 2014). None of reported patients had recurrence of dislocations, only 1 patient had subluxation and 93.5% (58 of 62 patients) returned to previous sport. In study performed by Lafosse group (Dumont *et al.* 2014), 10 of 64 (15.6%) patients returned to the operating room after the arthroscopic Latarjet procedure. Most common reason of revision surgery was removal of prominent screw, but 1 case of severe OA was also reported. None pseudoarthrosis of the coracoid graft was reported.

Commentary

Author of this study performed systematic review to compare outcome after Latarjet procedure with conventional SF and SB. A systematic review was conducted in accordance with PRISMA guidelines using MEDLINE and Embase databases. Clinical and biomechanical comparative studies of open and/or arthroscopic Latarjet with SF and SB were included. Results of this study will be presented on BESS 2023 Congress and here will be briefly summarized. 12 studies met eligible criteria: five biomechanical and seven clinical studies (SB, n = 279; SF, n = 845). 80.9% (SB). Mean follow up was 30.4 months. The overall SB recurrence rate was 3.3 % and SF 1.3%. Overall SB complication rate was 4.3% and SF 11.7%. Six clinical studies reported no statistical difference for functional scores and ROM. Two studies reported higher complications and reoperations with SF related to hardware. One study demonstrated higher recurrence rate with SB (p = 0.02). Radiologically, there was no significant difference in graft positioning and union at final FU, but graft resorption was higher in SF 36.4% vs. 14.3% SB. This result shows that SB provides the same clinical and radiological outcome with lower complication rate. Unfortunately, the major outcome which is recurrence rate is probably higher after SB.

Screw fixation in orthopedics is traditionally treated as salvation procedure, especially in case of graft fracture or comminuted fractures. In these situation possibility of stabilization by "golden screw" safe the patient, procedure, and surgeon. Author of this study experienced graft fracture during Latarjet procedure and having screw in that case was rescue which wouldn't be possible if SB was initially planned (Fig. 1 and Fig. 2).

Evidence from literature and unpublished systematic review showed that currently there is absolutely no reason to abandon screws for graft fixation in Latarjet procedure. Recently introduced suture button fixation provides lower reoperation rate related to hardware problem, but the price for it is higher recurrence rate, pseudoarthrosis of the coracoid graft and more complicated and time-consuming type of fixation.

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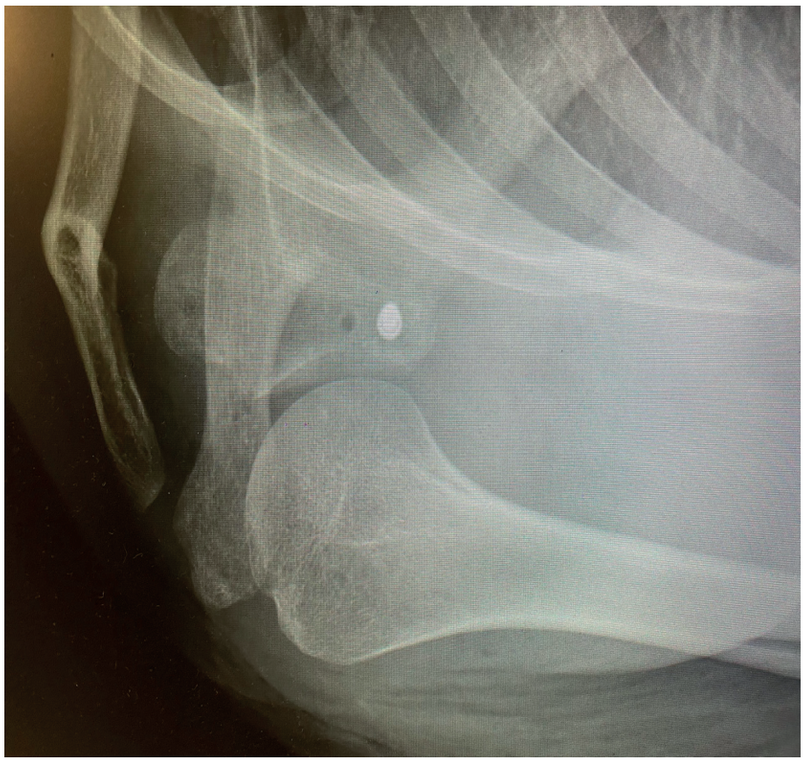

Figure 1: X-ray after arthroscopic Latarjet procedure complicated by partial graft fixation. Remnants of the graft, together with conjoined tendon was successfully fixed by lower screw.

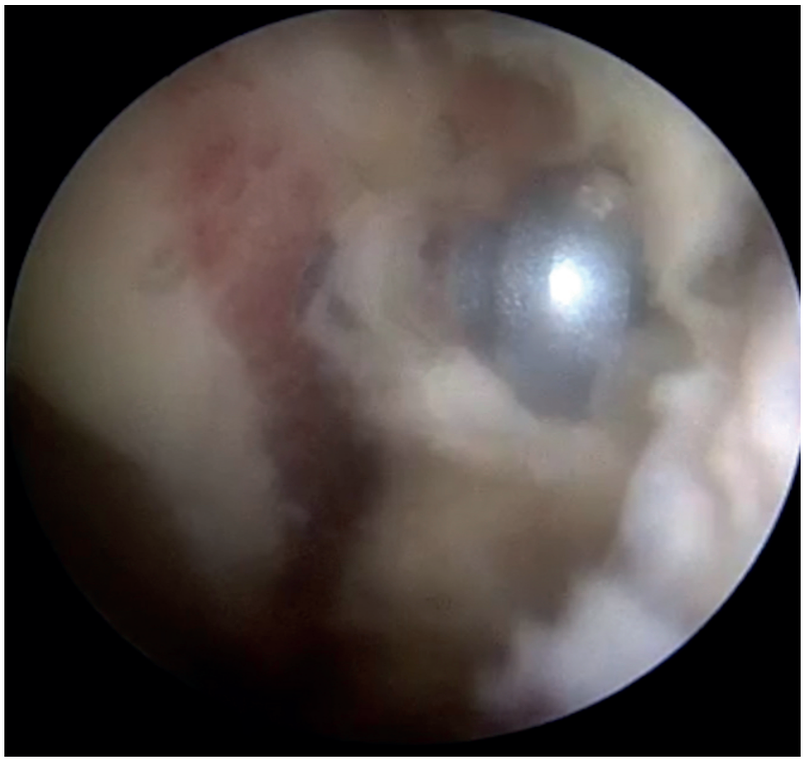

Figure 2: Arthroscopic view of Latarjet procedure complicated by partial graft fixation. Superior screw which was subsequently removed is presented.

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