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#### QUESTION 4: Does a prior arthroscopy of the hip joint increase the risks of subsequent surgical site infections/periprosthetic joint infections (SSIs/PJIs) in patients undergoing elective total hip arthroplasty?

**RECOMMENDATION:** There is no evidence to suggest that a prior arthroscopy of the hip increases the risk of subsequent SSIs/PJIs.

**LEVEL OF EVIDENCE:** Limited

**DELEGATE VOTE:** Agree: 81%, Disagree: 11%, Abstain: 8% (Super Majority, Strong Consensus)

#### RATIONALE

The use of hip arthroscopy for the treatment of various intra-articular or extra-articular problems has gained popularity during last decade [1,2]. Hip arthroscopy is known to be a safe and effective method for the treatment of femoroacetabular impingement (FAI) [3,4]. It is assumed, that the arthroscopic management of impingement or labral pathology will delay the process of joint degenerative disease. However, a considerable number of patients with both conservatively and arthroscopically-managed FAI eventually undergo total hip arthroplasty (THA) [5,6]. A second surgery, on a previously operated hip, could be complicated by scar formation and changes in neurovascular anatomy. In addition, potential contamination of the hip during hip arthroscopy could potentially predispose the patient to SSIs/PJIs after THA.

Several studies have evaluated the functional and clinical outcomes of THA after ipsilateral hip arthroscopy [7-12]. All of the studies on this subject were case-control studies, largely focusing on functional and clinical outcomes. The available studies did not have sufficient patient numbers to determine the risk of SSIs/PJIs following previous arthroscopy. Zingg et al. [7] compared three groups of patients. One group consisting of 18 patients who underwent THA after previous ipsilateral hip arthroscopy, compared with two control groups with a minimum of one-year follow-up. One control group received identical approach and implants; and the other a paired group matched for age, Body Mass Index (BMI) and Charnley categories. In their case cohort, only one patient had a superficial wound infection due to a suture granuloma that resolved with antibiotic therapy. They reported that previous hip arthroscopy would not negatively influence the performance or short-term clinical outcome of THA.

Nam et al. [12] compared 43 patients who received hip resurfacing arthroplasty following previous hip arthroscopy to a 1:2 matched group of 86 controls. Various clinical and functional outcomes were evaluated at different time points of six weeks, three months, six months, one year, and most recent follow-up visits. No ultimate differences were reported in functional scores, range of motion or complications, including infection at final follow-up.

Haughom et al. [10], evaluated 42 hips who underwent THA after a previous hip arthroscopy at a mean follow-up of 3.3-years and compared them to an age, sex and BMI (1:2) matched cohort of primary THAs. No significant difference was observed in postoperative Harris Hip Scores (HHS), rates of complications or revisions. One patient in each group had a PJI and underwent a subsequent revision.

Charles et al. [9], compared 39 patients who underwent THAs after hip arthroscopy to a 1:1 group of patients matched for age, sex and body mass index who underwent THA without prior hip arthroscopy. The groups had no statistically significant differences in terms of postoperative superficial or deep periprosthetic infections at a minimum 1-year follow-up (mean 52 months).

In a recent study, Perets et al. [11], compared 35 THA patients with a history of prior hip arthroscopy to a group of 1:1 matched controls. The matching criteria were age, sex, body mass index, surgical approach and robotic assistance. They evaluated the Harris Hip Scores (HHS), Forgotten Joint Score-12, Visual Analog Scale (VAS), satisfaction, postoperative complications, and reoperation rates following a minimum two-year follow-up. In the case group, 2 patients (5.7%) had minor infections which were managed nonoperatively compared to zero infections/complications in the control

group. Although the prior arthroscopy group had higher rates of both complications ( $n = 5$ , 14.3%) and reoperations ( $n = 4$ , 11.4%), only the difference in total complications approached marginal significance ( $p = 0.054$ ). Complications consisted of urinary tract infection, numbness around the incision, minor infection and allergic reaction to sutures.

With the current evidence available, we cannot conclude that a prior hip arthroscopy exposes patients undergoing THAs to a higher risk of infections. There is a need for studies with greater sample sizes to further explore this important question.

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## QUESTION 5: Does a prior arthroscopy of the knee increase the risk of subsequent surgical site infections/periprosthetic joint infections (SSIs/PJIs) in patients undergoing elective arthroplasty?

**RECOMMENDATION:** There is no evidence to suggest that a prior arthroscopy of the knee increases the risk of subsequent SSIs/PJIs in patients undergoing total knee arthroplasty (TKA).

**LEVEL OF EVIDENCE:** Moderate

**DELEGATE VOTE:** Agree: 81%, Disagree: 12%, Abstain: 7% (Super Majority, Strong Consensus)

## RATIONALE

Arthroscopy in the degenerate knee is not warranted, but it has been frequently performed over the years. Controversial indications have included young adults with degenerative joint disease to delay TKA [1,2] and for elderly patients for alleviating pain [3,4]. Knee arthroscopy can be appropriately used for loose body removal, meniscectomy, chondroplasty, ligamentous reconstruction and as a diagnostic tool prior to unicompartmental knee arthroplasty [5]. The rate of TKA following knee arthroscopy within one year is 10-12% [6-8], and those following ligamentous knee surgery have a higher risk of earlier osteoarthritis requiring TKA [9]. Studies have shown increased risks of revisions and PJIs after TKAs in patients with previous open-knee procedures [10-12], but the evidence for knee arthroscopy is conflicting.

Piedade et al. evaluated the outcomes and complications of TKAs in two retrospective cohort studies [11,13]. The first was a cohort of 1,119 primary TKAs with no previous surgery compared to 60 primary TKAs with a prior history of arthroscopic debridement and a minimum follow-up of two years. Two patients in the arthroscopy group (3%) and 14 patients in the primary TKA group (1.25%) had subsequent PJIs. Although this finding was not statistically significant, the total complication, reoperation and revision TKA rates were higher in the prior arthroscopic group. In addition, the authors found no

correlations between arthroscopy-TKA intervals (mean of four years) and complications or failures [11]. The second study did not specify the rates of infections [13]. When looking at general outcomes, Issa et al. reported no negative outcomes (function, survivorship and revision) following TKA after prior knee arthroscopy [14].

The time interval between arthroscopy and TKA is also important as was shown by Werner et al. [8], who evaluated the associations of knee arthroscopy prior to TKA with postoperative complications (infection, stiffness and venous thromboembolism) from a national database. Three cohorts were compared with each other and with an age-matched cohort. The three cohorts were: TKA within 6 months ( $n = 681$ ), between 6 to 12 months ( $n = 1,301$ ) and between 1 to 2 years after knee arthroscopy ( $n = 1,069$ ). They reported that TKAs performed within 6 months were associated with increased rates of postoperative infection, stiffness and venous thromboembolism.

Viste et al. [6], evaluated long-term Knee Society Scores (KSS), survivorships and complications of 160 TKA patients with prior knee arthroscopy (excluding ligamentous reconstruction) to a 1:2 matched control group of 320 primary TKAs with no prior surgery. The mean follow-up was nine years and the mean interval between arthroscopy and TKA was five years. Although PJIs were found in two controls and three arthroscopy cases, these findings were not statis-