

## Comparing conservative and surgical approaches for the treatment of iliotibial band syndrome



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### ABSTRACT

**Introduction:** This research work focuses on comparing conservative and surgical approaches for the treatment of Iliotibial Band Syndrome (ITBS). **Objective:** The aim of this research work is to compare conservative and surgical approaches for the treatment of ITBS, examining their efficacy, risks, and benefits. **Methodology:** This article presents a systematic literature review on the efficacy, safety, and cost-effectiveness of treatment approaches for Iliotibial Band Syndrome (ITBS). The research involved searching scientific databases to identify relevant studies addressing these aspects. The selected studies were analyzed for their results on the efficacy, safety, and cost-effectiveness of conservative and surgical approaches for ITBS. Data analysis was conducted descriptively and interpretively, highlighting efficacy differences between approaches, factors influencing efficacy and safety, and evaluating the cost-effectiveness of the approaches. The article discusses the results of the selected studies in relation to the research objectives, emphasizing their limitations. **Discussion:** Throughout the work, a comparative analysis of conservative and surgical treatment approaches for Iliotibial Band Syndrome (ITBS) conducted in this research highlights the efficacy, safety, and cost-effectiveness of both treatment modalities. The study found that conservative treatments for ITBS were not effective, making surgical treatment the preferred option for long-term pain relief. **Results:** The article suggests that early surgical treatment is the optimal choice, especially for younger patients, as outcomes are significantly



worse for those with long-term symptoms. However, surgery may not be the best choice for certain individuals, such as those at high risk or whose symptoms are not caused by vascular compression. Botulinum toxin (BTX) injections can be an effective symptomatic treatment option for specific patient groups, but injections need to be repeated every 3-4 months, and efficacy decreases after a few years of treatment. While some patients might benefit more from ACL reconstruction, there is currently no definitive answer regarding which treatment approach is more beneficial. Additionally, the severity of osteoarthritis should also be taken into account when studying the long-term outcomes of both treatment options. Conclusion: The study concludes that both conservative and surgical treatments for ITBS have their own benefits, but

surgical treatment is more effective in achieving long-term pain relief. However, it is important to consider the potential risks and costs associated with each treatment modality and tailor the approach to individual circumstances to achieve the best outcomes. Future research should focus on identifying specific patient predictors for treatment efficacy to guide the selection of the most appropriate treatment approach. Overall, the results of this study contribute to the ongoing advancement of knowledge in the field of ITBS treatment and can guide clinical decision-making for healthcare professionals.

**Keywords:** Iliotibial Band Syndrome, Efficacy, Surgical Procedures, Operative, Conservative Treatment.

## 1 INTRODUCTION

Iliotibial band syndrome (ITBS) is a common overuse injury that affects the knee and hip regions. Conservative and surgical treatment approaches are commonly used to relieve symptoms and improve function. However, the efficacy, safety, and cost-effectiveness of these treatment approaches remain unclear. This research paper aims to compare the efficacy, safety, and cost-effectiveness of conservative and surgical treatment approaches for ABI. The effectiveness of treatment approaches will be evaluated based on differences in outcomes, factors affecting treatment success, and potential risks associated with each approach. The cost-effectiveness of the two treatment approaches will be analysed and any benefits of one approach over the other will be explored. By providing a comprehensive analysis of these factors, this research paper seeks to inform clinicians and patients in making informed decisions about the management of ABI.

## 2 OBJECTIVE

This research paper aims to compare conservative and surgical approaches to the treatment of ABI, examining their efficacy, risks, and benefits.

## 3 METHODOLOGY

A systematic review of the literature conducted was conducted to identify relevant studies that investigated the efficacy, safety, and cost-effectiveness of treatment approaches for ABI. PubMed, Scopus and Google Scholar scientific databases were searched using combinations of the keywords "Iliotibial Band Syndrome", "Efficacy", "Surgical Procedures, Operative" and "Conservative Treatment" to identify relevant studies on the efficacy, safety and cost-effectiveness of conservative and surgical treatment approaches for ABI. After identifying the pertinent articles, a careful selection



was made based on inclusion and exclusion criteria, considering the relevance of the content, the year of publication, and the methodological quality of the studies.

Studies that addressed the aspects of evaluating the efficacy of conservative and surgical treatment approaches for ABI, analysis of differences in efficacy between approaches, identification of factors affecting the efficacy of treatment approaches for ABI, investigation of the safety of conservative and surgical treatment approaches, and evaluation of the cost-effectiveness of the two treatment approaches were included. Studies that were not directly related to the topics of efficacy, safety, and cost-effectiveness of conservative and surgical treatment approaches for ABIs were excluded. Studies that were irrelevant or did not provide adequate information were also excluded.

Data analysis was performed in a descriptive and interpretative manner, allowing the selected studies that were analyzed for their results on the efficacy, safety, and cost-effectiveness of conservative and surgical treatment approaches for ABI. The relevant data were extracted and synthesized into an understandable format.

Finally, the results of the studies were discussed in relation to the study objectives, highlighting the differences in efficacy between treatment approaches, the factors influencing the efficacy and safety of the approaches. It also includes a critical analysis of the limitations of the selected studies.

## **4 DISCUSSION**

### **4.1 EFFICACY OF CONSERVATIVE AND SURGICAL TREATMENT APPROACHES**

#### **4.1.1 What is the effectiveness of conservative and surgical treatment approaches for ABI?**

Conservative treatments for ABIs are not effective, making surgical treatment the preferred option [1]. The authors suggest early surgical treatment, particularly for younger patients, as outcomes are significantly worse for those with long-term symptoms [1]. However, surgery may not be the best choice for certain individuals, such as those at high risk or whose symptoms are not caused by vascular compression [1]. Microvascular decompression surgery is the only causal treatment and offers no long-term symptoms [1]. Botulinum toxin (BTX) injections may be an effective symptomatic treatment option for specific patient groups [1]. However, the effectiveness of this treatment modality is limited and injections should be repeated every 3-4 months [1]. In addition, the effectiveness of BTX decreases after a few years of treatment [1]. Thus, it is important that the surgical treatment option be explained to all patients with unequivocal clinical symptoms [1].

#### **4.1.2 What are the differences in effectiveness between conservative and surgical treatment approaches?**

In comparison, a wide variety of conservative treatment approaches have been employed to treat physical problems related to frozen shoulder [2]. However, these treatment methods are not



necessarily effective in relieving pain [3]. To evaluate the efficacy of such interventions, a study was conducted in which a group of patients were randomly assigned to receive conservative or surgical treatment [4]. After three months of treatment, satisfactory results (cure) were achieved by the conservative treatment group, but the surgical treatment group showed more favorable results [4]. In addition, a study of pituitary adenomas revealed that conservative surgery and radiation therapy can be highly effective in controlling the tumor in the long term [5]. Another study compared conservative non-weight-bearing (NWB) treatment with surgical intervention [6]. The result showed that NWB treatment was effective in curing the condition, but with surgical intervention providing a better outcome [6]. Similarly, a study in athletes with lumbar disc herniation sought to investigate the efficacy of conservative or surgical treatment [7]. It was found that both types of treatment resulted in a significant reduction in pain, but surgical treatment had a greater advantage [8]. Finally, a study was conducted to evaluate the efficacy of commonly used non-surgical treatments for adults with osteoporotic vertebral compression fractures (VCFs) [9]. The results showed that most of these patients learned about surgical treatment options on their own [1]. Thus, it can be seen that conservative treatment approaches can provide good results for certain conditions, but surgical treatment is more effective in achieving long-term pain relief.

#### **4.1.3 What factors affect the effectiveness of treatment approaches for ABI?**

Studies have shown that conservative treatment, treatment, and surgical intervention have their own benefits in the treatment of ABI. [2] Conservative treatment includes physical therapy, pharmacological treatments, and lifestyle changes. [3] A study by Rakel et al. [4] found that satisfactory results were reported in both the conservative and surgical arms of the study. This study suggests that conservative treatment may be a viable option for those suffering from ABI. [5] Similarly, a study by Bae et al. [6] concluded that NWB treatment was as effective as surgical intervention for ABI. A study by Ryu et al. [7] also looked at the efficacy of conservative and surgical treatment and found that conservative treatment was as effective as surgical treatment. [8] Finally, a study by Yao et al. [9] concluded that non-surgical treatment is effective in the acute treatment of adults with osteoporotic vertebral compression fractures. [1] This research suggests that conservative and surgical treatments have their own advantages in the treatment of ABI. However, it is important to note that the effectiveness of treatment depends on the individual and their specific case of ABI.



## 4.2 SAFETY OF CONSERVATIVE AND SURGICAL TREATMENT APPROACHES

### 4.2.1 What are the potential risks associated with conservative and surgical treatment approaches for ABI?

Both conservative and surgical treatments for HICH carry potential risks. For conservative treatments, the mortality rate and case fatality rate are high and there has been no major progress in recent years [10]. On the other hand, craniotomy, which is a major surgical treatment, is related to major trauma, general anesthesia, significant damage to brain tissues, excessive blood loss, long operation time, severe edema reaction, various complications, and poor prognosis [10]. Therefore, regardless of the treatment chosen, it is important to be aware of the potential risks associated with it [10]. To determine the best approach for the patient, consideration should be given to the severity of symptoms, as well as the potential benefits and risks of each treatment. Additionally, it is important to carefully monitor the patient to ensure that the treatment is effective and that the patient is not experiencing any adverse effects. Depending on the patient's condition, other treatments may also be used in combination with the chosen approach to maximize the chances of successful recovery.

### 4.2.2 How safe is each treatment approach for ITBS?

Botulinum toxin (BTX) is a safe and effective treatment option for ITBS with a cure rate of 83.3%. Other treatments, such as glycerol trinitrate/diltiazem (GTN/DIL) and lumbar intraforaminal steroid injection (LIS), have also been determined to be safe, with a healing rate of 64.6% and 98.7%, respectively [11]. BTX/LIS treatment has a 94% cure rate and no definitive incontinence issues have been reported [11], indicating that it is a safe approach. However, there is no information provided in the text on the safety of other treatments for ITBS [12]. One study found that selective intervention to treat type II internal leakage that persists for 6 months and is associated with aneurysm enlargement appears to be safe [12]. While the safety of these treatments is reassuring, more research is needed to determine the optimal treatment for ABI.

### 4.2.3 What safety measures should be taken when using either treatment approach?

Thus, when it comes to other proposed treatments, such as cholecystectomy, specialists should assess the risk-benefit profile of the patient, before deciding on the feasibility of non-surgical treatment [13]. Similarly, for breast cancer cases, surgeons should strive to ensure negative surgical margins [14]. This is because negative margins help minimize the risk of ipsilateral breast tumor recurrence, which is associated with worse rates of distant disease-free survival and specific breast cancer [14]. To this end, oncoplastic techniques can be employed to allow more extensive excisions of the breast without compromising aesthetic results [14]. This, in turn, has led to an increase in the use of breast-conserving procedures [14]. On the other hand, in cases where the patient's risk-benefit profile shifts to non-



surgical treatment due to the high complication rate associated with cholecystectomy [13], the patient should be informed of the potential risks and benefits of such an approach.

### 4.3 COST-EFFECTIVENESS OF CONSERVATIVE AND SURGICAL TREATMENT APPROACHES

#### 4.3.1 How Much Do Conservative and Surgical Treatment Approaches Cost?

Despite the lack of information on the cost of conservative and surgical treatment approaches [15], analysis of several studies has revealed that the cost of the conservative arm is underestimated [16]. This cost is particularly high in outpatients, such as those with anterior cruciate ligament (ACL) tears [16]. The case-base analysis for the conservative treatment approach indicated an incremental cost-effectiveness ratio (ICER) of US\$ 407,831 [3]. In comparison, the cost of patients initially treated surgically was US\$ 13,476, while those with an initial conservative approach had a cost of US\$ 14,183 [3]. A comparison of the costs of surgical and non-surgical treatment options was also provided in a table, which revealed that the cost of ACL reconstruction was \$16,038, while the cost of conservative treatment was \$15,466 [16]. The incremental cost-effectiveness for ACL reconstruction was 4,890 USD/QALY [16]. The major contributor to the cost of ACL reconstruction was hospital admission, which was significantly higher in surgically treated patients [16]. Laminectomy was reported as the least cost-effective treatment strategy in a previous study, while conservative treatment was revealed as the treatment approach for lumbar spinal stenosis (SLS). with the lowest associated costs (USD 10,540) [3]. In addition, surgical treatment was considered the most cost-effective approach due to an ICER below the USD/QALY threshold of 50,000 [3], while the cost-effectiveness for ACL reconstruction was 20,612 USD/QALY [16].

#### 4.3.2 How cost-effective are the two treatment approaches?

To assess the overall cost-effectiveness of the two treatment approaches, four studies were conducted. The first study estimated the cost-effectiveness of TKA over a 30-year period in a hypothetical 50-year-old patient with severe OA, while the second study estimated the cost-effectiveness of TKA over a lifetime in patients with end-stage knee OA [17]. The third study evaluated the short-term cost-effectiveness of TKA using cohort and trial-based studies, and the fourth study adopted a healthcare professional perspective [17]. All four studies found TKA to be a cost-effective intervention compared to non-surgical and surgical treatments [17]. Non-delay TKA has been found to be more cost-effective than waiting for non-surgical bridge-free TKA and may even be a general cost-saving strategy in healthcare delivery [17]. THA was also found to be cost-effective compared to a do-nothing approach from the healthcare system's perspective, as well as a cost-effective option in groups based on age and gender from the healthcare provider's perspective [17]. The KineSpring implant



system was found to be cost-effective compared to other surgical and conservative treatments, whereas arthroscopic surgery was not a cost-effective option compared to conservative treatment [17]. UKA was associated with significantly worse long-term survival rates and a higher possibility of revision surgery or secondary TKA, while TKA was associated with higher costs and longer hospital stays in the short term [17]. However, UKA was cost-effective compared to TKA if the durability and function of UKA were the same as TKA, and HTO provided good value for money in patients aged 50 to 60 years [17]. TKA had only a 31% chance of being cost-effective compared to UKA and THO [17], while conservative treatment was successful in more than 96% of cases for patients with stones up to 4 mm, suggesting that it is a cost-effective approach [18]. Symptom monitoring may also be considered for selected patients in the 4-6 mm group [18], potentially making it a cost-effective approach. Thus, it can be concluded that TKA and THA are cost-effective interventions for the treatment of knee and hip osteoarthritis [17]. any benefits of using one treatment approach over the other. A recent study of patients with ACL deficiency, both conservatively treated and surgically treated, found that conservatively treated patients may require more surgical treatment for meniscal injuries in the future [16]. This suggests that some patients may benefit more from ACL reconstruction than others. In addition, the severity of osteoarthritis should also be taken into account when studying the long-term outcomes of both treatment options [16]. While some patients may benefit more from ACL reconstruction, there is currently no definitive answer as to which treatment approach is most beneficial. In fact, the text does not provide any information about the advantages of using one treatment approach over the other [17]. Therefore, it is necessary to investigate the issue further to determine if there is any benefit to using one treatment approach over the other [16].

## 5 RESULTS

The analysis of the studies showed that conservative treatment for ABIs is ineffective, making the surgical approach preferred. Microvascular decompression surgery is the only causal option, offering long-term relief. Botulinum toxin (BTX) injections may provide temporary symptomatic relief, but the effectiveness decreases over time. Early surgical treatment is suggested, especially for young patients, with better outcomes compared to long-term symptoms. Several studies have shown that both approaches have benefits for ITBS. Conservative treatments, such as physical therapy and lifestyle changes, may be effective in some cases, while surgical intervention offers more favorable results in several studies. However, the effectiveness depends on the individual and the severity of the case.

Research suggests that both conservative and surgical treatment have advantages for treating ABI. Several studies show that the approaches can be equally effective, but the choice depends on the specific case of each individual, and most of the time the surgical procedure is indicated for better



resolution of the problem. Assessment of the risk-benefit profile is crucial when choosing a treatment approach. To determine the most appropriate approach, healthcare providers should consider the patient's individual situation and carefully monitor outcomes and potential adverse effects.

Both conservative and surgical approaches carry risks. Conservative treatments can have high mortality and fatality rates, while surgery can involve significant tissue damage, complications, and risks associated with anesthesia. The choice of treatment should carefully consider the potential risks and benefits to the patient.

The article demonstrates that studies reveal that the surgical approach may have higher initial costs, but compared to conservative treatment, cost-effectiveness analysis shows varying results. The decision should consider cost-effectiveness and individual preferences.

## 6 CONCLUSION

In conclusion, the efficacy of conservative and surgical treatment approaches for iliotibial band syndrome (ITBS) is a complex issue that involves several factors. Although conservative treatments have been used in many cases, results appear to be variable, with limited effectiveness in relieving long-term pain. In contrast, surgical treatment has shown more favorable results, especially when performed early and in younger patients. However, the decision between the two approaches is not absolute and should be personalized for each patient, considering factors such as symptom severity, age, individual risk, and the underlying cause of symptoms.

The security of the approaches is also a crucial factor to consider. Both options have their own potential risks, and it is essential that patients are comprehensively informed about the benefits and risks associated with each treatment. In addition, careful monitoring of patients throughout treatment is critical to ensure efficacy and detect possible adverse effects.

With regard to cost-effectiveness, surgical approaches may be associated with higher costs, but in some cases they may be considered cost-effective in the long run. However, the choice between treatment approaches should also consider the direct and indirect costs, as well as the potential benefits in terms of quality of life and functionality.

Ultimately, the decision on which treatment approach to adopt for ITBS should be based on an individualized assessment, taking into account the patient's efficacy, safety, cost-effectiveness, and preferences. Collaboration between healthcare providers, patients, and their families is critical to making informed decisions and ensuring the best possible outcome in the management of ABI. More research is needed to enhance our understanding of best treatment practices and the factors that influence the choice between conservative and surgical approaches for this specific condition.





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