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Idiopathic Proximal Tibiofibular Joint Laxity in a Collegiate Baseball Player: A Case Report

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Objective: Present a clinical case detailing the assessment and management of a collegiate baseball player suffering from symptomatic laxity of the proximal tibiofibular joint. **Background:** Injuries to the proximal tibiofibular joint are rare, and generally accompanied by some form of trauma. Typically, dislocations of the proximal tibiofibular joint occur in an anterior direction, and require reduction and possible fixation as a first course of treatment. **Treatment:** A 20-year-old collegiate baseball player reported to the athletic training clinic complaining of idiopathic lateral right knee pain. The patient could not recall a mechanism, but recalled an insidious onset of pain that had begun two months prior to reporting to the athletic training staff. There has been some documentation of patients presenting with congenitally lax proximal tibiofibular ligaments, but at this time, there is no demographic information on this patient population. **Uniqueness:** Most cases of proximal tibiofibular laxity occur as a result of trauma. In this patient's case, there was no specific mechanism of injury or site morbidity to suggest an injury had occurred. Additionally, the patient was able to develop dynamic and functional stability before regaining static stability. **Conclusion:** Anatomical abnormalities offer clinicians a unique opportunity to explore multiple levels of problem solving and patient assessment. Further research needs to be conducted to provide demographic data and treatment options for patients suffering from proximal tibiofibular joint laxity.

INTRODUCTION

Idiopathic laxity of the proximal tibiofibular joint is a rare condition.¹ Patients suffering from general joint laxity have been noted to experience laxity in the proximal tibiofibular joint, but there are documented cases of isolated laxity of the joint.¹ In cases of isolated proximal tibiofibular joint laxity, there is generally an accompanying joint injury such as a sprain or subluxation.¹ One study was able to compile 43 cases of proximal tibiofibular displacement, and found that these injuries primarily occur in the anterior direction with some form of trauma.² While there is limited epidemiological data available for the condition, there have been reports that laxity of the proximal tibiofibular joint may be due to congenital factors.³ Presently, the most commonly prescribed treatments for proximal tibiofibular joint laxity are aimed at treating the causative injury.⁴ In the event that the laxity is caused by a traumatic

disarticulation of the proximal tibiofibular joint, anatomic reconstruction and temporary fixation have been suggested as surgical interventions that have been met with success.⁴⁻⁶ There is no consensus on best practices for treatment of proximal tibiofibular joint laxity when there is no apparent mechanism of injury, but it has been suggested that the best course of management, is to attempt correction of the laxity, only if it becomes symptomatic.²

The purpose of this case report is to document the assessment and management of a patient suffering from symptomatic idiopathic proximal tibiofibular joint laxity. Upon confirmed diagnosis, the patient was managed with therapeutic exercise aimed at biceps femoris strengthening and kinesiology taping to provide moderate compression over the proximal tibiofibular joint. This case includes background information on proximal

tibiofibular joint laxity, descriptions of the assessment and injury management process, and subsequent return to full participation status.

CASE REPORT

A 20-year-old male collegiate baseball player reported to the athletic training clinic complaining of idiopathic pain and occasional clicking along the lateral aspect of the right knee. The patient was unable to recall a mechanism of injury, but had been experiencing chronic pain for over two months. The patient's symptoms were exacerbated with change of direction and lateral movements, and attempts with self-treatment with ice and over the counter non-steroidal anti-inflammatory medications were unsuccessful. When asked, the patient stated that diminished ability to quickly change direction and accelerate led the patient to report to the athletic training staff.

At the time of initial examination, there was no ecchymosis, edema, or noticeable deformity of the knee. Special tests assessing ligament and cartilage integrity along the lateral aspect of the knee were negative. However, a significant amount of anterior laxity was observed at the proximal tibiofibular joint. At this time, the differential diagnosis consisted of proximal tibiofibular joint sprain, fibular head injury, lateral meniscus tear.

After initial evaluation, the patient was referred to the team physician who did not have a strong suspicion of fracture and allowed the patient to compete in the final five contests of the season. While competing, the patient was taped with kinesiology tape to apply compression over the proximal tibiofibular joint (Figure 1). The patient was allowed to practice as tolerated, and despite reporting continued discomfort the patient was able to complete the season without missing a competition.



Figure 1. Kinesiology taping applied to provide compression over the proximal tibiofibular joint.

Due to the fact that the patient did not have generalized laxity, the team physician ordered an x-ray and MRI to further evaluate for injury. Neither diagnostic test revealed structural damage, causing the sports medicine staff to conclude that the laxity in the proximal tibiofibular joint was congenital. Based off this diagnosis, the patient was removed from weight bearing conditioning to allow any resultant inflammation to subside. The patient also began a knee strengthening therapeutic exercise protocol with emphasis on the biceps femoris. The decision to target the biceps femoris was made in conjunction with the team physician to attempt to improve general lateral knee stability. While performing therapeutic exercise, the patient was instructed to continue to use ice and over the counter non-steroidal anti-inflammatory medications as needed.

As the patient progressed through treatment and rehabilitation, weight bearing conditioning and exercises were gradually reintegrated. Following two months of therapeutic exercise, the patient still exhibited

proximal tibiofibular joint laxity in a static position, but reported no recurring pain with functional testing and sport specific activities. Given that the patient was no longer experiencing symptoms with change of direction or acceleration, the sports medicine staff concluded that the patient was functionally stable. With the patient passing functional testing at the two-month mark, he was cleared to return to full participation. The following season, the patient continued to have his proximal tibiofibular joint taped, but was able to compete in all required practices and competitions. Patient reported an increase in pain on days involving heavy conditioning, but in each case symptoms resolved with discontinuing the conditioning session and reinitiating functional activities the following day.

DISCUSSION

Laxity of the proximal tibiofibular joint is not uncommon when accompanied by some form of traumatic injury.^{1,2} However, while idiopathic or congenital laxity of the proximal tibiofibular joint has been observed, it is far less common.^{1,2} When managing a patient with proximal tibiofibular joint laxity, initiation of treatment and rehabilitation should be contingent on the presence of symptoms affecting ability to participate in physical activity.³ Should a patient become symptomatic, documented methods of treating the condition include joint reconstruction and temporary fixation.⁴⁻⁶

This case describes the diagnosis, and subsequent treatment and rehabilitation of a patient suffering from a symptomatic lax proximal tibiofibular joint with no apparent injury to the joint. In this case, the patient was able to return to full participation without recurrence of symptoms following symptom specific treatment and therapeutic exercise

targeting the biceps femoris and lateral aspect of the knee. The absence of site morbidity as assessed with x-ray and MRI led the sports medicine staff to determine that the laxity of the joint was congenital and that the patient's high level of activity led to irritation and inflammation. Additionally, it is noteworthy that the patient was able to regain functional stability, while still exhibiting signs of static instability.

CONCLUSION

It is crucial that clinicians conduct a thorough evaluation to determine the source of a patient's pain and pathology. Anatomical abnormalities offer clinicians a unique opportunity to explore multiple levels of problem solving and patient assessment. Without an accurate evaluation, it is difficult to formulate an effective injury management plan. In this case, a proper evaluation that led to a consensus regarding diagnosis resulted in positive patient related outcomes.

While the patient in this case was able to return to continue playing with a lax proximal tibiofibular joint, despite persistent static laxity. Until more research can be conducted regarding the prevalence of idiopathic and congenitally lax proximal tibiofibular joints and the underlying factors, clinicians must rely on patient reported outcomes and individual expertise when choosing the best course of injury management. When treating conditions with limited data such as an idiopathically lax proximal tibiofibular joint, evaluation and re-evaluation of the patient's treatment and rehabilitation plan is critical for optimal outcomes. Further research is needed to determine the most applicable therapeutic exercises and any contributing biomechanical factors that can be addressed during rehabilitation.

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