



Summary

The type of treatment used for lateral ankle instability has changed over the years. This paper reviews how the treatment of lateral ankle instability in Japan has changed and describes current trends. In Japan, at one point, a fresh injury was proactively treated with surgery. From 1990, conservative therapy was widely reported to provide good results for fresh injuries. The more accurate diagnosis of severity in future will enable the optimal treatment to be selected.

Chronic lateral ankle instability is an indication for ligament repair, provided that sufficient fibrous ligament tissue remains. Until the 1980s, chronic ankle instability had been treated by tenodesis. Anatomical studies of the lateral ankle ligaments conducted in Japan in the 1990s led to proposals for reconstruction surgery techniques based on the anatomical isometric point. Arthroscopic lateral ankle ligament surgery has become a major topic in recent years, and it is now a common subject for Japanese medical conferences.

Keywords

Sprain– instability– lateral ligament– ankle– sports

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Veränderungen und die aktuelle Situation der Behandlung der lateralen Sprunggelenksinstabilität in Japan

Zusammenfassung

Die Art der Behandlung der lateralen Sprunggelenksinstabilität hat sich im Laufe der Jahre verändert. Dieser Artikel untersucht die Veränderung der Behandlung der lateralen Sprunggelenksinstabilität in Japan und beschreibt gegenwärtige Trends. In Japan wurde früher eine neue Verletzung proaktiv operiert. Seit 1990 wurde berichtet, dass die konservative Therapie gute Ergebnisse in der Behandlung neue

REVIEW / SPECIAL ISSUE

Changes in surgeries for lateral ankle instability in Japan and the current situation

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Lateral ankle ligament injury is a common injury in athletes. Persistent instability after lateral ankle ligament injury has a major effect on sporting activities. The type of treatment used for lateral ankle instability has changed over the years. In Japan, the fashions for treatment have changed in tandem with those in the rest of the world. This paper reviews how the treatment of lateral ankle instability in Japan has changed and describes current trends.

In Japan, at one point, a fresh injury was proactively treated with surgery, and the surgical treatment of fresh injuries was widely reported. One study also described subtalar arthrography and other imaging findings obtained with fresh injury and during subsequent invasive surgery [18]. Today, when surgery is rarely used to treat recent injuries, those reports are valuable for their descriptions of the direct observation of the freshly injured ligament. From 1990, conservative therapy was widely reported to provide good results for fresh injuries [27], and the number of Japanese reports of the surgical treatment of fresh injury decreased. However, conservative therapy does not necessarily provide satisfactory results in all cases of fresh injury. Many previous reports of conservative therapy have

described the use of a single treatment method irrespective of the severity of the injury. However, it has been suggested that conservative therapy leads to poorer outcomes when both the anterior talofibular ligament and the calcaneofibular ligament are injured than when the injury affects the anterior talofibular ligament alone [16], and the results of conservative therapy may be worse if the injury is severe. The question of how to non-invasively identify patients who will not achieve good outcomes with conservative therapy as soon as possible after injury remains an issue, and this is a frequent subject of debate at medical conferences in Japan. Attempts are underway to use techniques such as ultrasound and magnetic resonance imaging to detect the level of injury [6,24], and it is hoped that the more accurate diagnosis of severity in future will enable the optimal treatment to be selected.

Chronic lateral ankle instability is an indication for ligament repair, provided that sufficient fibrous ligament tissue remains. In Japan, as in other countries, the Broström technique is the gold standard treatment for ankle instability [1]. If the residual ligament tissues are weak, they must be reinforced as well as repaired. The inferior extensor

Verletzungen bietet. Die genauere Diagnostik des Schweregrads der Verletzungen wird künftig eine optimale Behandlung ermöglichen.

Chronische laterale Sprunggelenkinstabilität ist ein Hinweis auf eine Bandreparatur, vorausgesetzt, es verbleibt ausreichend fibröses Bandgewebe.

Bis in die 1980er Jahre wurde die chronische laterale Sprunggelenkinstabilität durch Tenodesen behandelt. Anatomische Studien der lateralen Sprunggelenkbänder in Japan aus den 1990er Jahren führten zu Vorschlägen für Techniken der Rekonstruktionschirurgie auf der Grundlage des anatomischen isometrischen Punkts. Die arthroskopische laterale Knöchelbandoperation ist in den letzten Jahren ein bedeutendes Thema geworden und ist heute ein oft behandeltes Thema auf medizinischen Konferenzen in Japan.

Schlüsselwörter

Verstauchung– Instabilität– laterales Ligament– Knöchel– Sport

retinaculum, which can be harvested via the same skin incision, is generally used for reinforcement. The Gould technique [3], in which the inferior extensor retinaculum is pulled up to the fibula and sutured, has been well described, including in a number of reports from Japan. However, there have been few high-quality Japanese studies of its long-term outcomes. Although good long-term results have been reported from other countries, the Gould technique has also been reported to result in restricted range of motion (ROM), and its value is the subject of debate [7].

Until the 1980s, chronic ankle instability had been treated by tenodesis using the peroneus brevis tendon. The most commonly used tenodesis procedures in Japan included the Watson-Jones [26], Chrisman-Snook [17], and Evans [2] techniques. These were formerly widely performed, and they provided good short-term and medium-term results. However, these non-anatomical reconstruction techniques tend to restrict ROM, and arthropathic changes often progress over the long term [19]. Since the surgical incision is also long, and neurological symptoms and other complications are common, these methods have more recently fallen out of favor.

Anatomical studies of the lateral ankle ligaments conducted in Japan in the 1990s led to proposals for reconstruction surgery techniques based on the anatomical isometric point [8,13,14]. Autologous tissues used for grafting included tendon grafts such as the semitendinosus tendon [13], the gracilis tendon [21], the palmaris longus tendon [12], and the peroneus brevis tendon [7], as well as bone-patellar tendon grafts [20]. Staples have long been used for graft fixation, but interference screws [21] and suture anchors have also recently come into use. Reconstruction with artificial ligaments has the advantage of

eliminating problems at the graft harvest site. In Japan, Usami et al. reported in 2000 that ligament reconstruction surgery with an artificial ligament (Leeds-Keio) had good results after an average of 5 years [25]. Although not a few such procedures must have been performed in Japan, there have been few subsequent reports. The use of artificial materials for reinforcement has recently come under the spotlight again [15], and long-term results after reconstruction with artificial ligaments may be a focus of attention. Arthroscopic lateral ankle ligament surgery has become a major topic in recent years, and it is now a common subject for presentations at Japanese medical conferences. Endoscopic surgical techniques include arthroscopic Broström repair and arthroscopic reconstruction using tendon grafts. Lui et al. described arthroscopic-assisted lateral ligamentous reconstruction in 2007 [9], and Nery et al. subsequently reported their performance of arthroscopic-assisted Broström-Gould [11]. In Japan, the technique became widely known through the report by Takao et al. Once a detailed description of the surgical procedure was published in 2014 [4,10], from 2015, the number of cases of arthroscopic lateral ankle ligament surgery presented at Japanese medical conferences increased dramatically. At that time, open surgery was the mainstream procedure, and the efficacy of endoscopic surgery was controversial. The 2016 Annual Meeting of the Japanese Society of Surgery of the Foot (JSSF) included a debate between advocates of arthroscopic reconstruction and of open reconstruction, and the lively discussion attracted a great deal of attention. Thanks to the subsequent activities of the Ankle Instability Group (AIG), details of the more established surgical procedure were widely circulated [5,22,23]. At the 2018 Annual Meeting of the JSSF,

a joint meeting with the AIG was held that included detailed presentations of surgical procedures, including live surgery. More surgeons are likely to jump on the arthroscopic surgery bandwagon in the future, and the number of research publications is likely to increase further.

Conflict of interest

There is no Conflict of interest.

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