Arthroscopic reconstruction of lateral ligaments of the ankle (Anti-Roll) via three portals: A new technique

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Arthroscopic Anatomic Ankle Reconstruction of Lateral Ligaments (Ankle Anti-RoLL) using three portals: A new technique
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My disclosure is in the Final AOFAS Mobile App.

I have no potential conflicts with this presentation.
Several arthroscopic repair techniques have been published for the treatment of lateral instability of the ankle [1-8].

But there were few report about the reconstruction technique [8].

We have adopted a open anatomical reconstruction technique so far [9]. It showed good clinical results [10]. We have developed arthroscopic technique with these concepts.
Material and Methods

The patients who were treated at our institute from Sep. 2013 to Jul. 2014 for chronic lateral instability of the ankle were included.

The instability was diagnosed with physical examination and stress radiographs (Anterior and inversion stress radiographs using a Telos device).

Subtalar joint stress radiograph was performed to decide whether to reconstruct only the ATFL or both the ATFL and the CFL. (The ankle was rotated 45 degree internally with inversion stress and more than 10 degree of subtler angle was thought as unstable it needs CFL reconstruction [9].)

The indication whether the repair or the reconstruction was determined by following arthroscopic findings.

> Sufficient fiber of ATFL remnant → Repair of ATFL
> Insufficient fiber of ATFL remnant → Reconstruction
Material and Methods

48 patients were performed the surgery for the LIA in this period.
2 patients were performed the arthroscopic reconstruction.
The 2 patients were reviewed.

Surgical procedure

With 2.7mm, 30 degree arthroscope without traction of the ankle.
Debrate all the synovial tissues around ATFL.

3 Portals for this procedure

**MM**: Medial midline portal
As viewing portal for ATFL attachment (both fibula and talus).
At just lateral site of tibias anterior tendon.[5]

**acAL**: Accessory anterolateral portal
As working portal for talus, fibular and calcanea attachment.
At 1.5-2.0cm anterior from the tip of the fibula. [5]

**ST**: Subtalar portal
As viewing portal for calcaneus attachment of CFL.
At sinus tarsi.
This portal does not need for ATFL reconstruction.
Surgical procedure

The 3 Steps of this procedure.[9]

1: Making a Gracilis tendon graft

“T” shaped graft for ATFL reconstruction

“Y” shaped graft for ATFL & CFL reconstruction

2: Inside-out technique

Inseret a guidewire at anatomical insertion of the ligament

Guide wire

Over drilling

Change the guide wire to a passing thread

Introduce the graft via acAL portal

Do these procedure for all attachment of the ligaments via acAL portal

ATFL (fibula and talus): viewing via MM portal

Calcaneal attachment of CFL: viewing via ST portal

Sports activity was permitted three months after surgery. ROM, range of motion.
Case 1: 30 y.o. Male
ATFL reconstruction

Before surgery
AOFAS score: 4

After surgery (6m)
AOFAS score: 8

no complication
no recurrence

All these arthroscopic views show the step of Interference screw insertion.
Case 2: 31 y.o. Male
ATFL and CFL reconstruction with Anterior ankle impingement

AOFAS score: 69
Before surgery
no complication
no recurrence

AOFAS score: 90
After surgery (6m)

All these arthroscopic views show the step of guide wire insertion.
Discussion

We have performed anatomic reconstruction of the lateral ligament of the ankle since 2001[9]. The features of this procedure are as follows:

1. A gracilis autograft (“I” or “Y” shaped)
2. Inside-out technique
3. Interference screw
4. Accelerated rehabilitation

It showed Good clinical result [10].

Karlsson and Peterson score at before and 2 years after surgery

64.1±4.8 (range 57-70) → 91.7±7.7 (range 74-100)

But it needed 3 to 4 cm skin incision.

In this report

We have achieved same anatomic reconstruction technique with less invasive procedure.

It may result in less morbidity than open procedure?

Limitations

✓ Case report
✓ short term
✓ non comparative
Conclusion

This arthroscopic reconstruction of lateral ligament of the ankle via three portals achieved same reconstruction technique that we had successfully performed with open procedure before.

Although further studies are required, arthroscopic technique will likely prove to be associated with less morbidity than open procedure and the equivalent clinical result would be expected as open procedure.
References


8. Lui TH. Arthroscopic-assisted lateral ligamentous reconstruction in combined ankle and subtalar instability. Arthroscopy 2007;23(5):554e1—5.
