

Arthroscopic Synovectomy with Joint Distraction Using a Patella Tendon Bearing Brace for Severe Hemophilic Ankle Arthropathy

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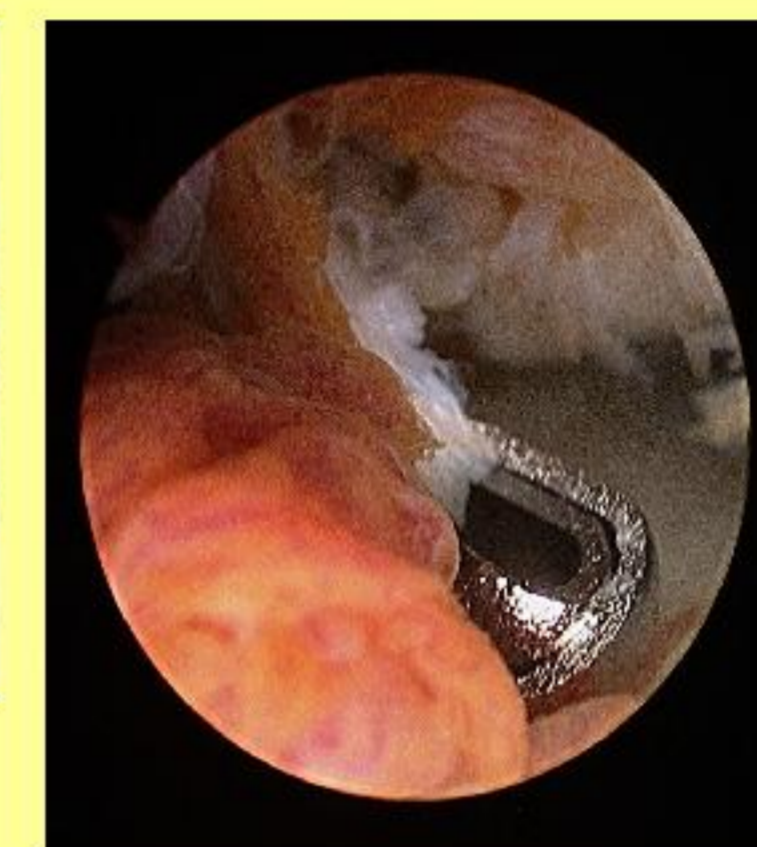


PURPOSE

The ankle is one of the joints most frequently affected by haemophilia, and can be considered the most common site for haemophilic arthropathy in the second decade of life [1, 2]. The major goals of synovectomy are considered to be reduction of bleeding and maintenance of joint function [2-4]. Synovectomy is generally thought to retard, but not halt, the progression of haemophilic arthropathy. Synovectomy is thus not typically indicated for advanced haemophilic arthropathy. Rodriguez-Merchan [4] stated that the best solution for advanced arthropathy of the ankle is ankle arthrodesis. Although arthrodesis represents the gold standard for progressed ankle arthropathy, we prefer to avoid this option, particularly for paediatric patients. We therefore devised a treatment to reduce weight-bearing using a patella tendon-bearing (PTB) brace after synovectomy. We already reported the preliminary results [5]. The purpose of the present study was to evaluate the clinical results of this procedure.

PATIENTS AND METHODS

Nine patients (all boys, 5-18 years, mean 10 years) with progressed ankle arthropathy were treated. There were eight hemophilia A patients and one hemophilia B patient. Seven patients were classified in severe type and two were in moderate type. One patient had inhibitor. Careful arthroscopic synovectomy was performed and defected cartilage areas were treated with bone marrow stimulation technique. The PTB brace was applied for 1 year postoperatively. Clinical results and radiographic finding using weight-bearing views were evaluated. Follow-up durations were from 24 to 64 months with an average of 48 months.

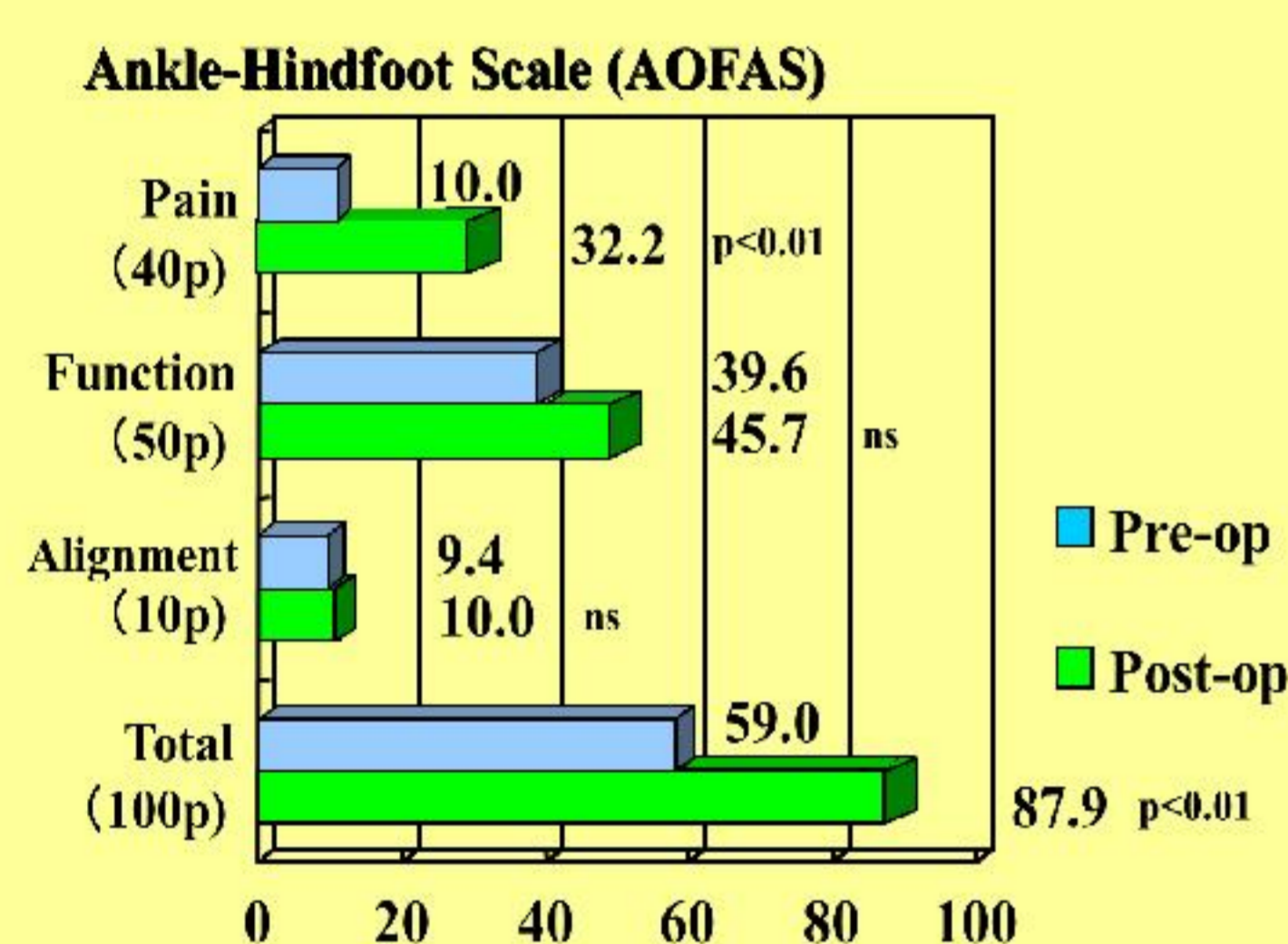


Arthroscopic synovectomy

PTB brace for one year

RESULTS

Pain and disturbance of ADL were dramatically improved. An average AOFAS score was improved from 59.0 points to 87.9 points. Episode of intraarticular bleeding was significantly decreased after the treatment. Erosive changes were repaired and narrowing of joint space was recovered to nearly normal. The Arnold stages also were improved. An average of Pettersson score was improved from 7.7 to 4.6



	Pre-op	Post-op
Osteoporosis	0.6	0.2
Enlargement of the epiphysis	0.2	0.2
Erosion of the joint margin	0.9	0.3
Irregular subchondral surface	1.4	0.9
Incongruity of joint surfaces	1.2	0.8
Subchondral cyst	1.3	0.4
Narrowing of the joint space	1.1	0.7
Angular deformity	0.9	1.0
Total	7.7	4.6

Radiographic Evaluation



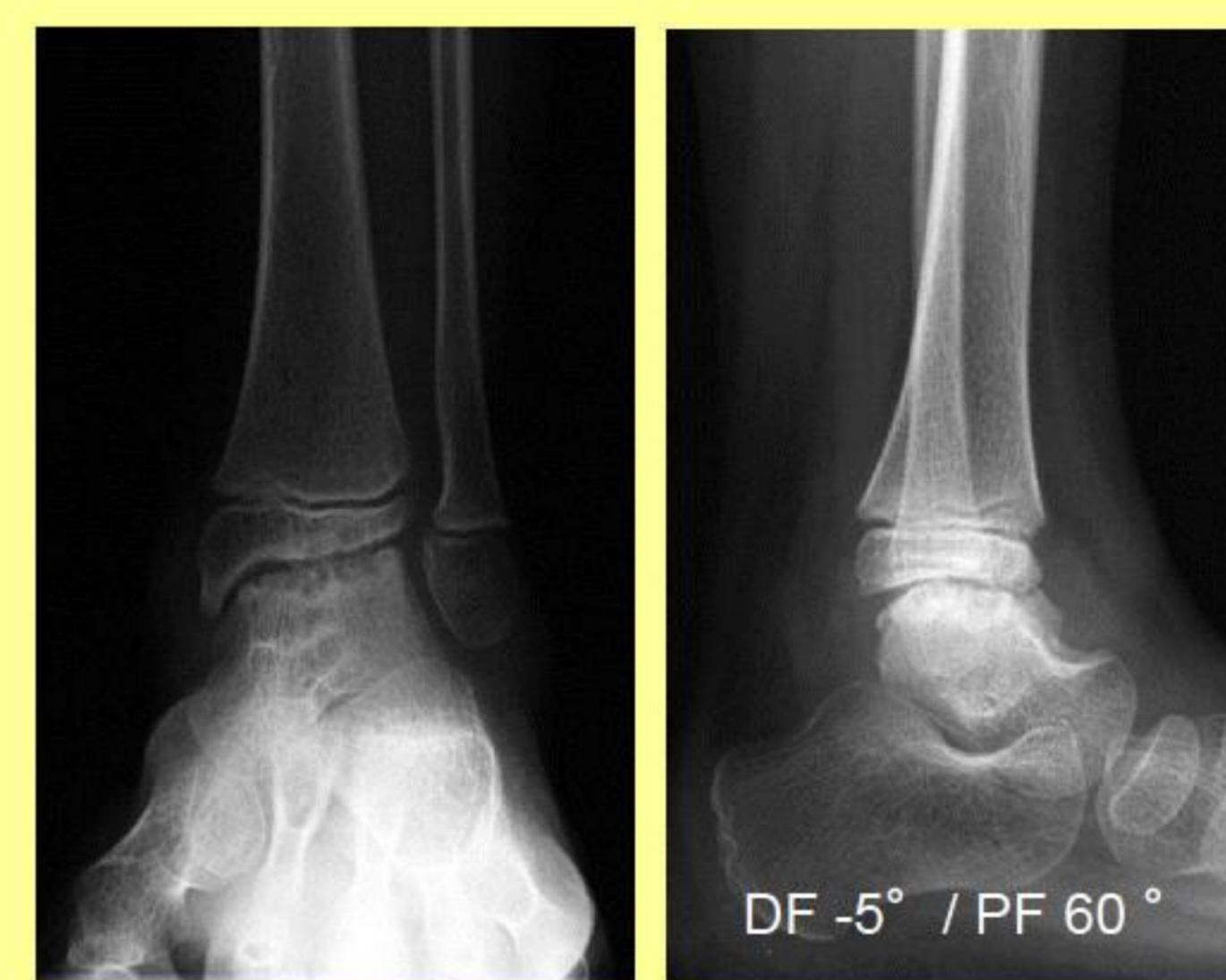
A 11-year-old Boy
Hemophilia B, Moderate type

Surprisingly, using this treatment, opening of joint space was expected like in this case. Although he was affected Autism before surgery, he was cured post-operatively and he plays drums in his band now.

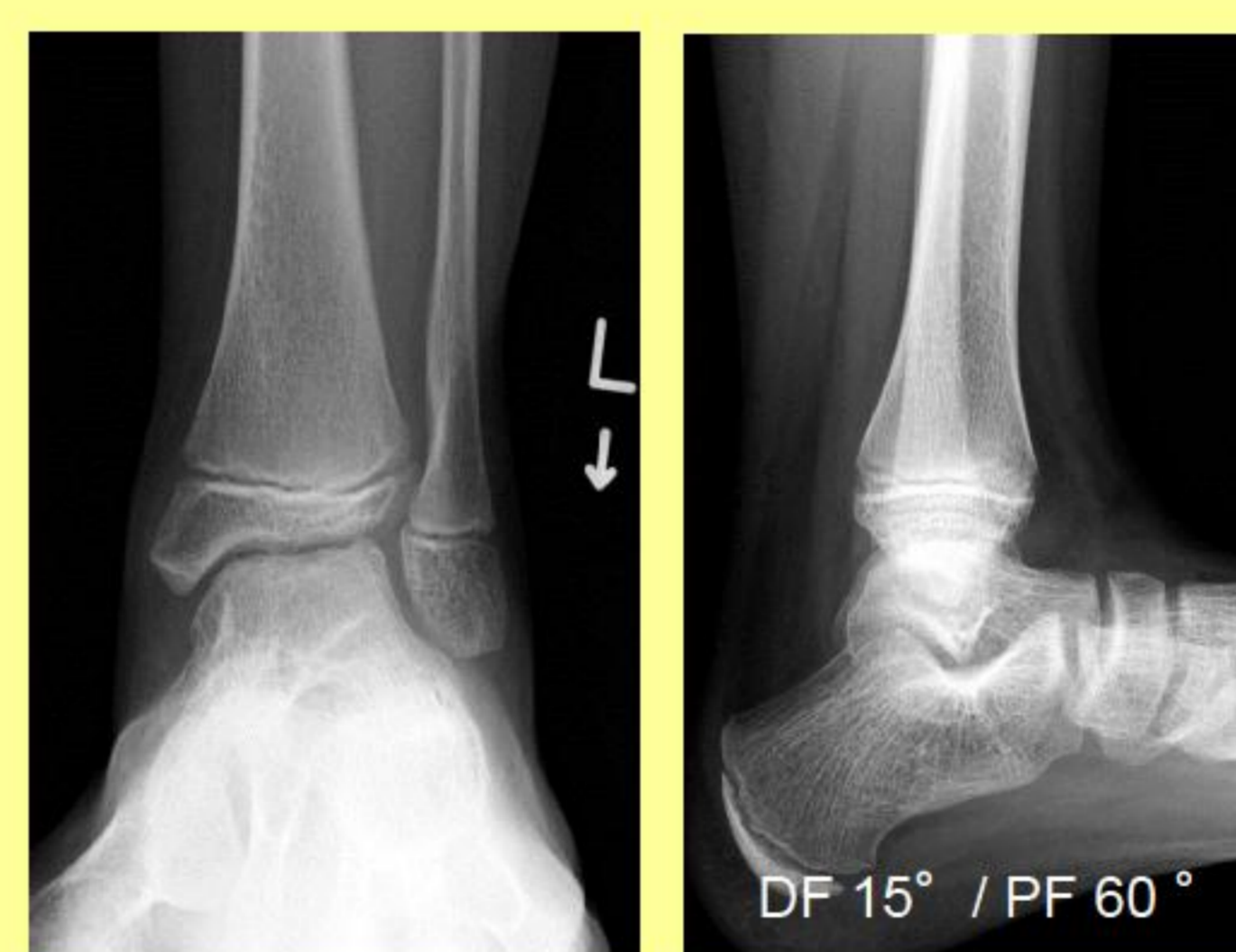
CASE PRESENTATION

A 5-year-old Boy
Hemophilia A, Severe type

Hemarthrosis was already observed in his left ankle when he initially walked. Severe hemophilic arthropathy was developed and he was referred to our hospital.



Pre-op



Post-op 4 years 7months



He can jump on the treated ankle and he fully enjoy baseball and he dreams becoming a professional baseball player.

DISCUSSION

We thought that reduction of weight-bearing on the ankle may be necessary for regenerating articular cartilage. Morse et al. noted that joint distraction arthroplasty may be a viable alternative treatment to arthrodesis and replacement for young patients presenting with a congruent, painful, mobile, arthritic ankle joint [6]. Joint distraction arthroplasty with a hinged external fixator may be effective [6, 7], but is difficult to accomplish in young children. A properly fitted PTB brace can reportedly reduce load transmission to the hindfoot by 80% [8]. We therefore applied a PTB brace for one year postoperatively. The minimum required duration for wearing a PTB brace remains unclear. At least in our small series, removing the PTB brace after 1 year postoperatively and allowing full activity without the brace resulted in clinical and radiographic improvements.



Limitations of the present report include the fact that we were unable to detect what kind of tissue articular cartilage regenerated as, since no second-look was performed; however, joint spaces were opened in weight-bearing views and excellent clinical results were obtained. Given these findings, some regeneration of cartilage may have occurred. Long-term results remain unclear, and as some arthropathic changes would have remained present in the ankles, careful follow-up will be necessary.

CONCLUSION

Arthroscopic synovectomy combined with a PTB brace improved radiographic stage for progressed ankle arthropathy. In particular, the joint space was opened. This method should be indicated before resorting to arthrodesis.

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