

ORIGINAL RESEARCH

PREDICTION OF TENDOACHILLES TENOTOMY IN CLUBFEET TREATMENT- OUR EXPERIENCE AT IGIMS

Arnab Sinha¹, Wasim Ahmed¹, Manish Kumar², Santosh Kumar³

SR¹, Assistant Professor², Additional Professor³

Department of Orthopaedics, Indira Gandhi Institute of Medical Sciences, Patna, India.

ABSTRACT:

Introduction: Clubfeet is the most common musculoskeletal congenital anomaly. **Aim:** This study aims to find out if we can predict the need for a tenotomy depending upon the initial precasting Pirani score of the deformity for better counselling of the parents. **Materials and Method:** This is a prospective study conducted on 64 patients (76 feet) of idiopathic clubfoot who were treated by the Ponseti method. **In Results:** The present study showed that 96% of feet having a Pirani severity score $>$ or $=$ 4 (or a severe deformity) needed tenotomy. **Conclusion:** Even a small procedure as a tendoachilles tenotomy is a matter of great concern and worry for the parents of the patient. Parents of a clubfeet child can be properly counselled regarding the need of tenotomy at the initial presentation itself if the deformity score is $>$ or $=$ 4.

Key words: Clubfeet treatment, Musculoskeletal, Tenotomy, Tendoachilles.

Corresponding author: Dr Arnab Sinha, C/o Dr (Capt.) Dilip Kumar Sinha, 302, Vishwanath Plaza, Near Dayanand High School, Khagaul Road, Mithapur, Patna 80000, Bihar, E mail drarnsin@gmail.com

This article may be cited as: Sinha A, Ahmed W, Kumar M, Kumar S. Prediction of Tendoachilles Tenotomy in Clubfeet Treatment- Our Experience At IGIMS. J Adv Med Dent Scie Res 2015;3(5):S32-S35.

INTRODUCTION

Clubfeet is the most common musculoskeletal congenital anomaly with an incidence of 1:1000 live births. Historically, the treatment of this condition was essentially surgical. With the acceptance of the Ponseti method of correction of clubfoot, this nonsurgical management revolutionised the treatment protocol. Today the Ponseti method stands as the preferred treatment method. The severity of the deformity is scored by the Pirani score. The Ponseti method consists of manipulation, serial casting and if required a tendoachilles tenotomy. Even though considered nonsurgical protocol, the tenotomy is a cause of concern for the parents of the child and a constant worry for them. This study aims to find out if we can predict the need for a tenotomy depending upon the initial precasting Pirani score of the deformity for better counselling of the parents.

MATERIALS AND METHOD

This is a prospective study conducted on 64 patients (76 feet) of idiopathic clubfoot who were treated by the Ponseti method.

INCLUSION CRITERIA

All patients of idiopathic clubfoot less than 9 months of age.

EXCLUSION CRITERIA

1. Secondary clubfoot
2. Those who have been managed by methods other than the ponseti method before presentation.
3. Patients older than 9 months at presentation.

Each of the patients registered were given a OPD number and a detailed personal history was recorded including the age, sex, side affected, fathers name, mothers name, address and detailed history of any treatment received.

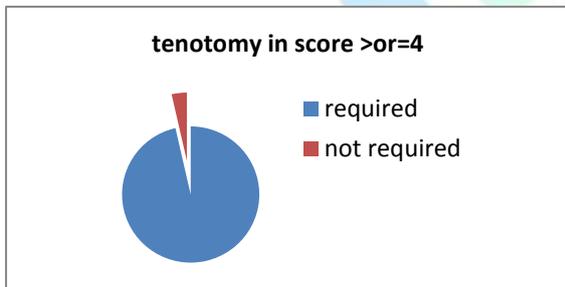
A through general and local examination was carried out. The severity of deformity was scored using the Pirani severity score at presentation.

Pirani severity scoring: Dr Shafique Pirani, clubfoot clinic of Royal Columbian Hospital, Canada developed this valid, user friendly and reliable method of clinically evaluating the severity of a virgin clubfoot. This system consists of six clinical signs and scores are given adding up of points for each sign being either normal (0),

moderately abnormal (0.5) or severely abnormal (1). The mid foot clinical signs are 1.curved lateral border,2 .medial crease and 3.Talar head coverage. The hindfoot clinical signs are 1.Posterior crease, 2. Rigidity of equines and 3. Emptiness of heel. Thus a Pirani severity score of 0 to 6 is possible. When assessed for interobserver reliability, the kappa score has showed this to be almost perfect and much better than any previous scoring system. It is simple and reliable. A foot can be assessed in less than a minute and no technical equipment is needed. The manipulation and weekly casting was started according to the Ponseti method at weekly intervals. Thursday was fixed outdoor day was clubfoot patients at our institution. the scoring was done using the Pirani score before manipulation and casting every week till the end point of manipulation and casting. End point of manipulation and casting- an abduction of 60* was taken as a endpoint of casting. If a dorsiflexion of 15* is also achieved by casting alone then, no tenotomy was required or else the patient was put up for tenotomy.

RESULTS

SCORE>OR=4	NUMBER	PERCENTAGE
Tenotomy required	72	96%
Tenotomy not required	4	4%
Total	76	100%



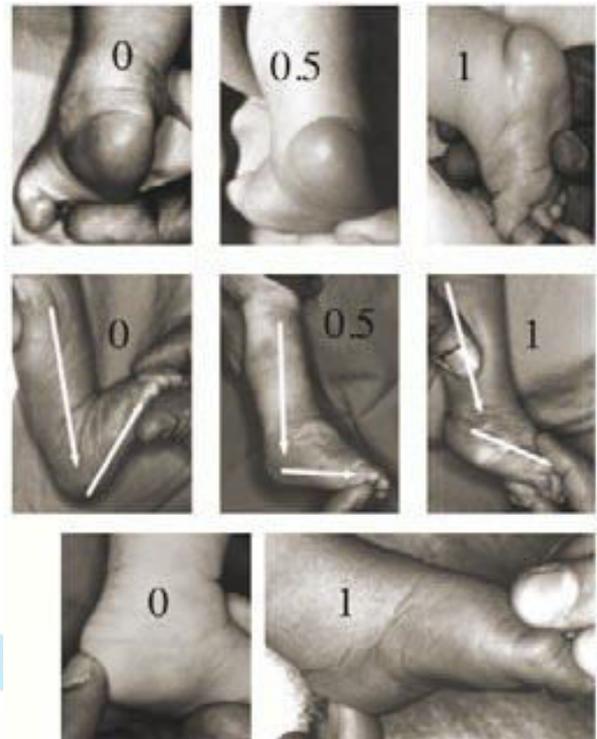
In the present study 96% of feet having a Pirani severity score > or = 4 (or a severe deformity) needed tenotomy.

PREREQUISITES BEFORE TENOTOMY

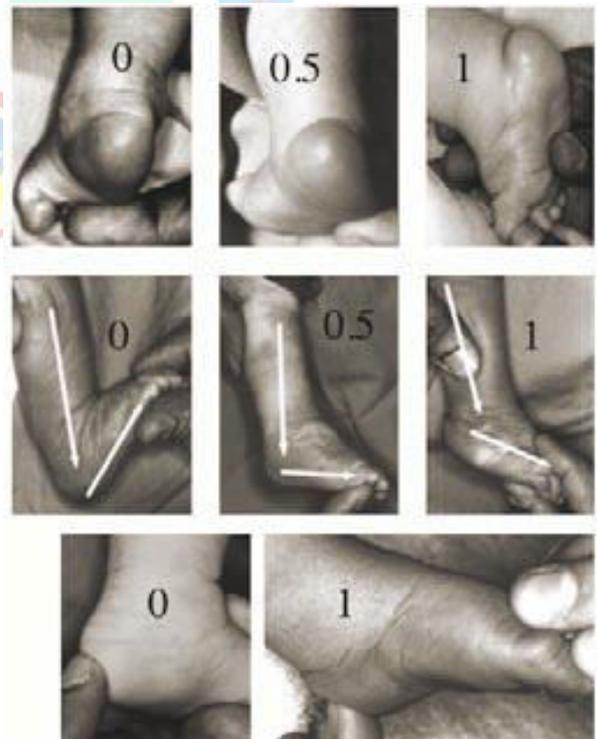
Tenotomy is indicated when HS > 1, MS=0



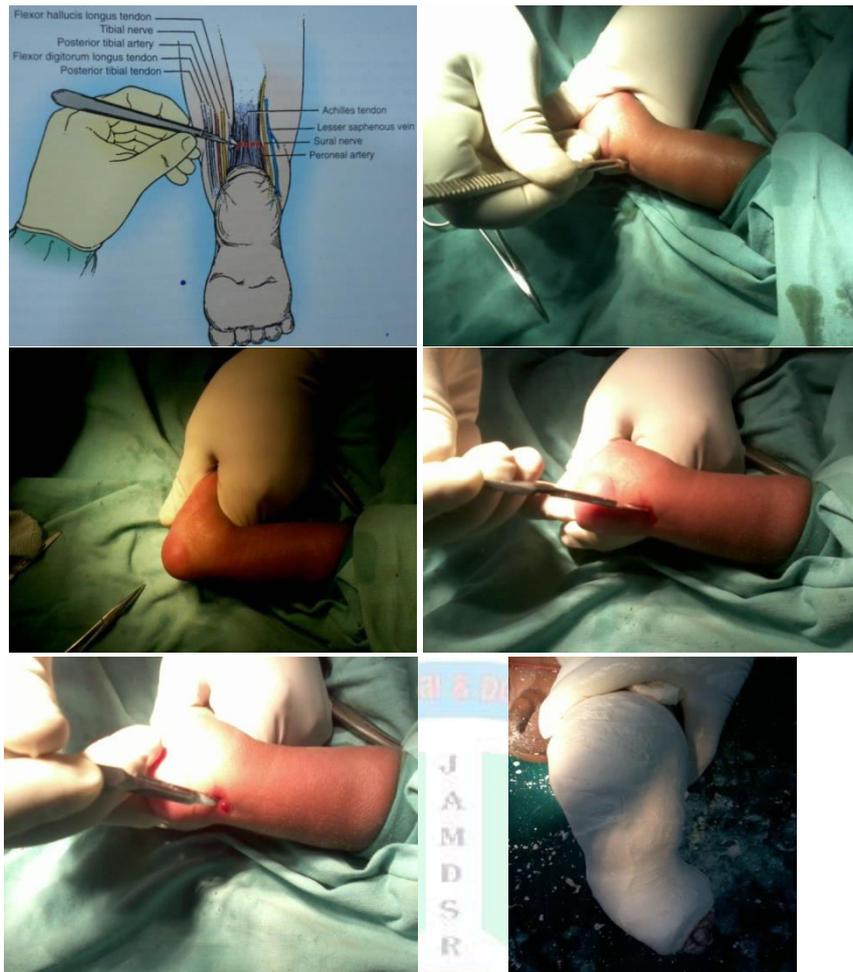
PIRANI FOREFOOT SCORES



PIRANI HIND FOOT SCORES



TENOTOMY IN INDICATED CASES:



Minimal scar of tenotomy, Adequate correction present, Modified foot abduction orthosis



DISCUSSION

Tenotomy is indicated in those cases in which ankle dorsiflexion was less than 15° even after obtaining 60° of abduction. The available literature is in favour of the opinion that majority of the feet with a severe deformity i.e. a high pirani score needs a tenotomy to achieve fully corrected plantigrade feet.

As per Scher et al (2004) 85% of feet with a initial score of above 5 required tenotomy. Shack (2006) observed that the median score at the start of treatment was 5.5 (mean 4.75, 2 to 6). A pirani score ≥ 5 predicted the need for tenotomy ($p < 0.01$). Of the 40 feet studied, 39 (97.5%) achieved correction of deformity by ponseti method. The remaining foot required soft tissue release. A total of 25 (62.5%) of the feet underwent tenotomy.

Radler (2007) opines that radiographs confirmed that additional dorsiflexion achieved by the tenotomy is true dorsiflexion achieved at the ankle and hindfoot and not at the midfoot.

CONCLUSION

In the present study 96% of feet having a pirani severity score of ≥ 4 required a tenotomy. Since even a small procedure as a tendoachilles tenotomy is a matter of great concern and worry for the parents of the patient. Parents of a clubfeet child can be properly counselled regarding the need of tenotomy at the initial presentation itself if the deformity score is ≥ 4 .

REFERENCES

1. Laaveg SJ, Ponseti IV "Long term results of treatment of congenital clubfoot" JBJS 62A (1) 23-31 1980
2. Pirani S Zeznik L "MRI study of congenital clubfoot treated by Ponseti method" JPO 21(6) 719-726 2001
3. N Shack et al results of ponseti treatment of clubfoot JBJS 2006
4. C Radler HM manner et al Radiographic evaluation of idiopathic clubfeet undergoing ponseti treatment JBJS june 2007 89,1117-1183
5. Ponseti IV congenital clubfoot: fundamentals of treatment Oxford University press 1996
6. Ponseti IV Clubfoot management Editorial JPO 20 (6) 699-700 2000
7. Stephanie Boehm, MD1, Noppachart Limpaphayom, MD1, Farhang Alaei, MD1, Marc F. Sinclair, MD2 and Matthew B. Dobbs, MD1 JBJS 2008
8. Victoria-Diaz and Victoria-Diaz, 1984. Victoria-Diaz A, Victoria-Diaz J: Pathogenesis of idiopathic clubfoot. Clin Orthop Relat Res 1984; 185:14.
9. Wallace B Lehman, MD.: Method of evaluating the effectiveness of lowa (Ponseti) club foot technique. Paper No. 051 AAOS – Podium presentations, Dallas, TX (Feb. 2002).
10. Yamamoto et al., 1998. Yamamoto H, Muneta T, Morita S: Nonsurgical treatment of congenital clubfoot with manipulation, cast, and modified Denis Browne splint. J Pediatr Orthop 1998; 18:538.
11. Zlatko Anguelov.: Ponseti method of clubfoot treatment, University of Iowa. Health Care; Currents, winter 2000, Volume 1, No. 1

Source of support: Nil

Conflict of interest: None declared