

ROLE OF ABDUCTOR HALLUCIS TENDON RELEASE IN TREATMENT OF METATARSUS ADDUCTUS IN TODDLERS

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Introduction

Metatarsus adductus is a common congenital foot deformity. Its actual incidence is not well documented and is probably underestimated at one in every 1000 live births. The deformity of pure metatarsus adductus is transverse plane deviation at the tarsometatarsal joint (Lisfranc joint) without other abnormalities of the foot. One of the most widely accepted theories of the etiology of metatarsus adductus is that of abnormal intrauterine position, as in prima gravida mothers. Heredity has been shown to account for only two to four percent of all cases of metatarsus adductus.

Aim of the work

To evaluate the role of abductor hallucis release in the treatment of moderate and severe cases of metatarsus adductus in children below the age of three years.

Patients

This study included 60 feet, half of which were treated by abductor hallucis tendon release, the other half by serial casting and the results were compared. All patients were managed at the Orthopaedic Department at El-Hadra University Hospital or Sporting Students Hospital, Alexandria.

Methods

In this study, the degree of severity was assessed using Bleck's classification system and modified Lichtblau test for tight abductor hallucis tendon. Those patients in whom the abductor hallucis tendon was clinically felt to be tight were treated by tendon release otherwise conservative treatment was adopted.

Results

Table (1): Comparison between the two studied groups regarding post management results:

Post management results	Group			
	Abd. h. tenotomy		Serial casting	
	n	%	n	%
Mild residual deformity	2	6.7	6	20
Normal feet	28	93.3	24	80
Total	30	100	30	100
X ²	2.308			
P	0.127 N.S.			

X² = Chi square test
P was significant if ≤ 0.05
N.S. = Not Significant.

Table (2): Comparison between the two studied groups regarding post management results and age

Age	Post management results							
	Abd. h. tenotomy				Serial casting			
	Mild residual deformity		Normal		Mild residual deformity		Normal	
	n	%	n	%	n	%	n	%
0.5-1.0	0	0.0	0	0.0	0	0.0	7	29.2
1.0-1.5	0	0.0	6	21.4	0	0.0	11	45.8
1.5-2.0	2	100.0	6	21.4	4	66.6	4	16.7
2.0-2.5	0	0.0	4	14.3	2	33.3	2	8.3
2.5-3.0	0	0.0	12	42.8	0	0.0	0	0.0
Total	2	100.0	28	100.0	6	100.0	24	100.0
X ²	4.91				16.1			
p value	0.178				0.005*			

X² = Chi square test
*P was significant if < 0.05

Table (3): Comparison between initial deformity and management method

Initial deformity	Post management results							
	Abd. h. tenotomy				Serial casting			
	Mild residual deformity		Normal feet		Mild residual deformity		Normal feet	
n	%	n	%	n	%	n	%	
Moderate	0	0.0	9	30.0	0	0.0	13	43.3
Severe	2	6.7	19	63.3	6	20.0	11	36.7
Total	2	6.7	28	93.3	6	20.0	24	80.0
X ²	0.918				5.735			
p value	0.338				0.017*			

X² = Chi square test
*P was significant if ≤ 0.05

Conclusions

Abductor hallucis tendon release is an effective, easy, safe and reliable procedure to correct the metatarsus adductus deformity in properly selected cases with few complications and high success rate.

Serial manipulation and casting is also very effective in deformity correction if done properly by well trained personnel .

Younger patients with moderate deformity gave better results than older patients with more severe deformity.

There is no significant difference between abductor hallucis tendon release and serial casting in treatment of metatarsus adductus in toddlers.

Parents care of post-operative cast and follow up visits has a great impact on final results.