

Is ulnar shortening osteotomy necessary for the treatment of ulnar styloid impaction syndrome?

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INTRODUCTION:

Ulnar styloid impaction syndrome (USIS) is characterized by a long styloid process that can cause ulnar side pain even if the ulnar variance is neutral or negative. Unlike in UIS, the focus in USIS has been primarily on the ulnar styloid length. Moreover, the treatment of USIS aimed at correcting the impaction of the ulnar styloid itself. Hence, several studies have performed styloidectomy, either open, arthroscopic, or oblique styloid osteotomy, to treat USIS. Although these studies showed satisfactory outcomes, they were limited to case reports or series. USO, which aims at reducing the ulnar variance, can also reduce the impact of the ulnar styloid without violating the intra-articular structures. Although USO is considered a viable method, studies reporting the clinical and radiological outcomes of USO for the treatment of USIS are limited. This study aimed at evaluating the outcomes of ulnar shortening osteotomy (USO) for the treatment of USIS and to compare its effects for the treatment of ulnar impaction syndrome (UIS).

METHODS: We enrolled 144 patients who underwent USO between March 2015 and October 2021. The patients were divided into a UIS group (group I, n=93) and a USIS group (group II, n=51). Clinical and radiological parameters, including Disabilities of the Arm, Shoulder, and Hand (DASH) score, ulnar variance, ulnar styloid length, and ulnar styloid process index (USPI), were collected pre-operatively and one year post-operatively, and a comparative analysis was performed.

RESULTS:

The DASH score showed significant improvement in both groups ($P < .001$ and $P < .001$), and there was no significant difference between the two groups one year after surgery ($P = .143$). The USPI was significantly different between the two groups ($P < .001$). The ulno-lunate and ulno-triquetrum distances showed significant increases in both groups, with significant differences between the two groups ($P = .020$, and $P < .001$, respectively). The incidence of post-operative arthritic changes in the distal radioulnar joint was significantly greater in the UIS group than that in the USIS group (21 vs. 3, respectively; $P = .017$). No remarkable differences were observed in the post-operative evidence of chondromalacia at the last follow-up between the two groups.

DISCUSSION AND CONCLUSION:

This study demonstrated the effectiveness of USO as a treatment for USIS by reducing ulnar styloid impaction. Therefore, USO is a viable option for the treatment of USIS. Additionally, USPI may be considered as a reliable radiologic parameter with diagnostic value for USIS.

	Group I (UIS)		Group II (USIS)		P-value	
	Pre	Post	Pre	Post		
Age (years)	42.11	42.11	42.11	42.11	.848	
Sex						
Male	46	46	46	46	.848	
Female	47	47	47	47		
Ulnar variance						
Pre	2.18	2.18	2.18	2.18	.848	
Post	2.18	2.18	2.18	2.18		
Ulnar styloid length (mm)						
Pre	44.44	44.44	44.44	44.44	.848	
Post	44.44	44.44	44.44	44.44		
Ulnar styloid process index (USPI)						
Pre	2.22	2.22	2.22	2.22	.848	
Post	2.22	2.22	2.22	2.22		
Ulnar styloid process length (mm)						
Pre	4.72	4.72	4.72	4.72	.848	
Post	4.72	4.72	4.72	4.72		
Ulnar styloid process angle (°)						
Pre	10.20	10.20	10.20	10.20	.848	
Post	10.20	10.20	10.20	10.20		
Ulnar styloid process length (mm)						
Pre	1.00	1.00	1.00	1.00	.848	
Post	1.00	1.00	1.00	1.00		
Ulnar styloid process length (mm)						
Pre	1.00	1.00	1.00	1.00	.848	
Post	1.00	1.00	1.00	1.00		
Ulnar styloid process length (mm)						
Pre	1.00	1.00	1.00	1.00	.848	
Post	1.00	1.00	1.00	1.00		
Ulnar styloid process length (mm)						
Pre	1.00	1.00	1.00	1.00	.848	
Post	1.00	1.00	1.00	1.00		
Ulnar styloid process length (mm)						
Pre	1.00	1.00	1.00	1.00	.848	
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