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TO COMPARE THE USEFULNESS OF X-RAYS AND ULTRASOUND IN THE DIAGNOSIS OF NON TRAUMATIC WRIST JOINT PAIN.

Dr. Rahul Mishra[1] (Associate Prof.) & Dr. Sanjeev Kumar Sharma[2] (Associate Prof.)
Dept. of Radio Diagnosis, Shyam Shah Medical College, Rewa (M.P.)[1&2]

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Corresponding author: Dr. Sajeev Kumar Sharma
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Abstract
Background & Method: This study conducted in Department of Radio diagnosis Shyam Shah Medical College, Rewa (M.P.) A study performed in Ages >25 yrs and both sexes included in the study. All patients with wrist joint pain examined by the orthopedic OPD & IPD and referred to the dept. of radio-diagnosis.
Result: Cross sectional statistical analysis of ultrasound findings of affected wrist joint of study subjects based on numbers and percentages from table, reveals 98% of subjects had no joint involvement and the rest 2% of subjects had joint involvement. The frequency of case detection from USG was more 124(62%) compared to X- Ray 18(9%), the difference was found to be statistically significant (P =.00001).
Conclusion: US is an useful instrument to complement the physical examination of RA patients. The method is quick and safe. The GS/pD scales are helpful to detect early synovitis and US is also sensitive in the identification of bone erosions in rheumatoid arthritis. US imaging can be considered superior to X-rays in the diagnosis of non traumatic wrist joint pain.
Keywords: x-rays, ultrasound, non traumatic & wrist.
Study Designed: Observational Study.

Introduction

TFCC includes the TFC, dorsal and volar radioulnar ligaments, ulnar collateral ligament, meniscus homologue, and the ECU. It functions as a cushion and stabilizer to forces during axial loading on the ulnar aspect of the wrist and distal radioulnarjoint[1]. Any component may be the site of pathology but the TFC is the commonest to demonstrate abnormalities. The patient may present with ulnar side pain, a clicking sensation, or a decreased range of motion. Clinical examination may demonstrate a positive load test or direct tenderness, which may also represent ulnar abutment or chondromalacia of the hamate. Palmer classification for TFC tears divides TFC injuries into traumatic and degenerative with subdivision by location. In general TFC traumatic tears, if peripheral have a good blood supply and can be repaired[2].

The central avascular region requires debridement. Pathology affecting the triangular fibrocartilage complex includes trianglefibrocartilage partial/full thickness tears; detachment and degeneration; extensor carpi ulnaris tenosynovitis / subluxation; ulnar collateral; and radioulnar ligament tears[3]. TFC tears appear as loss of the homogeneous echotexture and triangular structural appearance, absence of a portion of the structure, hypoechoic clefts, or linear clefts/cysts. Thickness measurements of TFC have been proposed for detecting tears; however, this is unreliable. Although US have high specificity for detecting TFC tears, the sensitivity is low. Radial sided tears are difficult to visualize on US[4].

The wrist is a complex and unusual joint because normal function depends on the integrated action of a number of tissue structures including the carpal and forearm bones, the intrinsic and extrinsic ligaments, tendons, and the components of the Triangular fibro cartilage complex (TFCC) [5].

Material & Method

This study conducted in Department of Radio diagnosis Shyam Shah Medical College, Rewa (M.P.) from May 2019 to April 2020 in association with Department of orthopedics. Number of subjects- approximately a total of 200 patients included in the study.

Inclusion criteria –

- All cases of non traumatic wrist pain referred from orthopedic department

Exclusion criteria -

- Trauma
- Age group <25 yrs.
- Not given consent

Method of collection of Data

A study performed in Ages >25 yrs and both sexes included in the study. All patients with wrist joint pain examined by the orthopedic OPD & IPD and referred to the dept. of radio-diagnosis. A pre-informed written consent is taken from the patient, which is attached to a questionnaire which include the patient's history, general physical examination and detailed wrist joint examination. All eligible patients will then be put through

Results

Table 1: Age wise distribution of study subjects.

Age (Years)	Frequency	Percent
25-34	84	42
35-44	40	20
45-54	38	19
> 55	38	19
Total	**200**	**100**

Cross sectional statistical analysis based on number and percentage is done and presented in table 1, it reveals that 42% of the subjects were between 25-34 years, 22% of subjects were between 35-44 years, 19% of subjects were between 45-54 years and rest 19% of the subjects were above 55 years of age.

Table 2: Distribution of study subjects based on affected wrist.

Limb	Frequency	Percent
Right	104	52
Left	96	48
Total	200	**100**

Cross sectional statistical analysis of affected wrist based on number and percentages done, 52% of subjects with right wrist involvement and rest 48% to have left wrist involvement.

Table 3: Ultrasound examination- Joint involvement

Condition	Frequency	Percent
Abnormal	04	02
Normal	196	98
Total	200	**100**

Cross sectional statistical analysis of ultrasound findings of affected wrist joint of study subjects based on numbers and percentages from table, reveals 98% of subjects had no joint involvement and the rest 2% of subjects had joint involvement.

Table 4: Comparison of X ray and USG findings of study subjects.

Result	X RAY	Ultrasound	P value
Abnormal	18 (9%)	124 (62%)	0.00001
Normal	182 (91%)	76 (38%)	
Total	200	200	

The frequency of case detection from USG was more 124(62%) compared to X- Ray 18(9%), the difference was found to be statistically significant (*P* =.00001)

Discussion

The distribution of the affected wrist in the study subjects. Right wrist (52%) is slightly higher than the left wrist (48%) and does not have much significance. 91% of subjects showed normal X-ray findings and only 9% of subjects had abnormal findings[6].

Ultrasound findings in the affected wrist joint in the study subjects. Abnormality of the joint was seen in only 04 subject[7]. The comparison of X-ray and Ultrasound findings of the study subjects. 9 subjects were found to have abnormal X-ray findings as compared to 62 subjects in Ultrasound. The difference was found to be statistically significant (P = 0.00001).

The wide variety of pathologies that we have encountered and diagnosed in our study was shown to be reliably diagnosed with ultrasound with specificity of 1 and positive predictive value of 1 as shown in a study done by John .W. Read et al[8&9].

Conclusion

US is an useful instrument to complement the physical examination of RA patients. The method is quick and safe. The GS/pD scales are helpful to detect early synovitis and US is also sensitive in the identification of bone erosions in rheumatoid arthritis. US imaging can be considered superior to X-rays in the diagnosis of non traumatic wrist joint pain.

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