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THE IMPORTANCE OF ULTRASONOGRAPHY FOR THE VALIDATION OF PULLED ELBOW TREATMENT

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Abstract:
Objective: *The aim of this study was to use ultrasonography for the diagnosis and confirmation of Pulled Elbow treatment.*
Place and Duration: *In the Orthopedic Unit II and Radiology Department of Nishter hospital Multan for one-year duration.*
Method: *This cross-sectional descriptive study started in March 2019 and lasts until March 2020. The results were then recorded by the doctor on the checklist and introduced the SPSS software (version 20) for further analysis.*
Results: *The study studied 60 children with elbow injuries. 27 (45%) were girls (women) and 33 (55%) there were children (boys). This means a higher level of injury in men than in women. The highest incidence of elbow injuries was observed in children from 3 years of age (15%). For the approval of the treatment, it was noted that the accuracy of the ultrasonic method is 92%.*
Conclusion: *In this study, it is aimed at confirming the method of treatment according to the result of ultrasound performed after treatment. As a result, the sensitivity and specificity of ultrasound was achieved by more than 90% with confirmation of the treatment method for the treatment of the towed elbow.*
keywords: *ultrasound, X-ray, elbow injury*

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INTRODUCTION:

Elbow is most common in children (1-3); especially those under 5 years of age. Previously, it was thought that it is only in young children; However, similar elbow injuries, such as elbow, trigger or under the center of the annular ligament, are also seen in adults. Elbows taken in children usually occur when adults or tall individuals suddenly pull the child's hand out of the elbow when they are stretched or the child suddenly pulls out his hand from the adult's hand. During this formation, the radial annular bone is pulled by the ligament, resulting in the exit of the radial head (partial outlet). Sometimes the ligament is torn a bit and is trapped between the radial bone and the capitulation head. Common symptoms of this injury are hearing a low sound of decay, or the child suddenly breaks down to tears due to pain and refuses to use the arm. The arm is bent and wrapped without leaving any signs of swelling and bruising. Pain is usually felt in the elbow; but sometimes you can feel it on your wrist or shoulder. It is capable of bending the elbow and prolonging movements; However, resistance to bending of the forearm causes pain in the faces and elbow joints. According to annual statistics from Wales and England, the rate of elbow incidence is reported in 50,000 cases per year. Trauma occurs most often in the left hand and girls.

According to Brown's 2009 study, the incidence of emergency elbow tests in children aged 0 to 18 years was 2.7 in 1,000 cases. Diagnosis is usually based on the patient's history and clinical trial; X-rays are required in cases where the patient's past is uncertain. X-rays can distinguish fractures of the elbow. Other abnormalities of osteomyelitis can also be detected. Sometimes children experience completely pain-free during the X-ray process. This is due to the radial (forearm) X-ray technique of the child accidentally rotating to obtain an accurate image of the elbow, which heals abnormalities. Elbow ultrasound can also be useful.

Ultrasound can also provide useful clinical information to evaluate a wide range of pathological conditions affecting the area of the skin and joint surfaces, such as the addition of tendons and soft tissues of the ulnar joints. Elbow ultrasound is a test that depends on the skills of the machine operator. In addition, the experience of the machine operator, surgical knowledge and the definition of the disease should be taken into account. Elbow ultrasound has x-ray privileges, including utility in terms of price and time, as well as increasing the ability to distance resolution. Therefore, ultrasound provides the opportunity to perform a patient's examination in a comfortable position.

The study of elbow ultrasound allows the examiner to distinguish between bone cartilage and soft tissues and vary depending on different perspectives and levels in anatomical relationships. Ultrasound makes it easy to compare the towed elbow with the normal anti-god elbow. In addition, torn ligaments are useful for thickening and sometimes detecting acts, dislocations of the radial head, as well as for measuring the distance between the radial head and capitulation when the forearm is inward.

Therefore, the use of ultrasound can be a strong diagnosis and can be effective in elbow healing, even in cases of the elbow for unknown reasons, even low sounds are not audible, and recovery time is uncertain.

For this anomaly, terms such as the nanny elbow and pulled elbow are used. However, if the pathological anatomy of this abnormality can be detected by ultrasound, the term "anular ligament trap") in children is more suitable for use. It is possible to obtain a visible image of the elbow made by ultrasound. Mark J disappears with healing and healing. A satisfactory recovery can be confirmed by observing the normal relationship between the pylorus ligament, similar to the radial head, capitulation and the opposing elbow. Ultrasound is a diagnostic test and a test for documenting and confirming a successful recovery. Given the widespread use of ultrasound, we decided to do a study that took advantage of lower costs, less time spent, and also not to use radiation, to approve elbow treatment taken from ultrasound.

METHODS:

This cross-sectional study held in the Orthopedic Unit II and Radiology Department of Nishter hospital Multan for one-year duration began in March 2019 and lasts until March 2020 when 60 samples were taken using a simple sampling method. Among the inclusion criteria were patients with elbow injuries and patients with elbow injuries and ages from 4 months to 6 years.

The device used in this study was an ultrasound with a 12 MHz transducer probe. Ultrasound was performed in all patients. After the reduction, he underwent a physical examination and performed an ultrasound to confirm treatment. To reduce the error of the test, the doctor was asked to perform an ultrasound. In non-maintenance of the elbow, the appearance of a J-shaped in the radio-humorous joint was observed.

The results were recorded by the doctor on the checklist. Descriptive statistics and sensitivity were used to identify data using SPSS version 20.0.

RESULTS:

This study examined 60 children with elbow injuries. 27 (45%) were boys (women) and 33 (55%) boys, which indicates the highest percentage of this injury in boys compared to girls (Table 1). The mean age of patients was 2 years 7 months and the standard deviation was 1178 (2.7-178). The majority of patients (65%) were observed in children aged 3 years (15) aged 1 years 9 months to 3 years and 10 months and the lowest incidence of elbow injuries. A total of 60 patients studied, 24 suffered a right elbow injury and 36 suffered a left elbow injury. Therefore, it can be said that the trauma of the left elbow in children (60%) is more common.

Table 1. A summary of descriptive statistics of the studied independent variables[a]

		Incidence rate, No. (%)
Gender	Male	33 (55%)
	Female	27 (45%)
	Total	60
The involved elbow	Right	24 (40%)
	Left	36 (60%)
	Total	60

As a result, 49 (81.6%) participants had a normal ultrasound and 11 (18.4%) participants did not have ultrasound normal. Of the 11 patients with ultra-abnormal sounds, 5 were referred to orthopedic surgeons with further verification and observation of a fracture in the elbow area. Ultrasound was not effective and reliable due to obesity or excessive weight loss in 6 patients, so it was observed at the emergency room. Four of the six children were discharged after the relief. X-rays were performed and written due to the inability to conduct thorough examinations, while agitation was continued in 2 out of 6 children.

The correct positive number of patients (number of patients receiving full treatment and normal ultrasound) was 49, the number of patients with false positives (number of patients with full treatment and abnormal ultrasound) was 6 (Table 2).

Table 2. Frequency of ultrasonography results based on patient's treatment (medical) condition[a]

		The patient's condition		
		Treated (discharged), No. (%)	Untreated (Hospitalization and referral to an orthopedist), No. (%)	Total
Ultrasonography results	Normal (reduction)	49 (89.1)	0 (0)	49
	Abnormal (no reduction, no ligament)	6 (89.1)	5 (100)	11
	Total	55 (91.67)	5(8.33)	60

The percentage of people with a positive result (BPPv) positive test (normal ultrasound of the radio-humeral joint) and full treatment is 1. Negative predicative value (VNP) is the percentage of patients with negative examination (without normal radiocasted ultrasound) and orthopedic pathology 0.45 (Table 2).
In the confirmation of elbow treatment taken in our study, the sensitivity and specificity of ultrasonography was 89.1% and 100%, and the accuracy of the ultrasound method was reported as 92% to confirm the treatment of the pulled elbow.

DISCUSSION:

According to the results obtained in this study, the sensitivity and specificity of ultrasonography was obtained more than 90% in the confirmation of the therapeutic method, which is considered in the treatment of the pulled elbow. Therefore, ultrasound has different advantages such as high resolution and speed for approval of elbow treatment. Our findings are Lee et al. They reported a case of an ankle wrestler with an MCL injury diagnosed with dynamic ultrasound. In his investigation, a 58-year-old man injured his left

elbow while battling his arm. Ultrasonography and dynamic ultrasound (USA) differences were compared to the evaluation and evaluation of McL elbow injury. Initially, ultrasonography and elbow injuries were evaluated with U.S. Dynamics. The patient had an LCM tear on his left elbow and a 3-year follow-up ultrasound examination. The break in the US showed no tear from the MCL, but a dynamic u.S. study showed tears. They concluded that dynamic U.S. elbow injuries were indispensable in evaluating. In addition, ultrasound is a useful imaging mode for evaluating elbows with possible LCM lesions, as this mcl can indicate the broken component. As a result of advanced technologies, the United States can offer higher resolution and real-time images of soft tissues. Therefore, its advantages include safety (non-intellectual radiation), accessibility, speed, comfort and profitability. Finally, the United States stressed that elbow MCL lesions is a very useful imaging method for diagnosis. In addition, the U.S. can be used to evaluate certain conditions, such as dynamic muscle hernia, and is an indispensable technique for evaluating elbow injury. Therefore, the outcome of this case report is appropriate for our study.

In this study, all pediatric patients who were diagnosed with elbow withdrawal between January 2002 and December 2011 were studied according to gender, age, relapse rate and relapse, injury mechanism and treatment outcomes. It turned out that the frequency of injuries reached peak at the age of 6 months and 2 for boys and boys, and also that the left arm was more affected by the right arm. Studies on the elbow taken previously concluded that trauma usually occurs between the ages of 1-4 years and the maximum intricacies are between 2 and 3 years.

However, the results of this study usually occur in children under the age of 1 years. In addition, the frequency of injuries to the left hand tends to increase with age, but in other environments and injured cases, there is a low rate of injuries in this study, so X-rays should be used before the patient's history reduces traction.

CONCLUSION:

In this study, it is aimed at confirming the method of treatment according to the results of ultrasound performed after treatment. As a result, the sensitivity and specificity of ultrasound was achieved by more than 90% with confirmation of the treatment method for the treatment of the towed elbow.

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