

JOHN THOMAS SIGN: IS IT HELPFUL TO DETERMINE THE LOWER LIMB FRACTURE?

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ABSTRACT

OBJECTIVE: The aim of this study was to evaluate the helpfulness of John Thomas sign in determination of lower limb fractures. **METHODS:** Plain pelvic radiographs of 500 men patients with single fracture in the lower limb were evaluated. Positive sign was defined as direction of the penis shadow to the fractured limb. **RESULTS:** John Thomas sign was positive in 87.8% of cases with the strongest positive correlation in patients with hip fractures. JT sign was positive in more than half of cases with fractures of other parts of the lower limb. **CONCLUSION:** John Thomas sign can be helpful to predict the fractured lower limb even fractures of the foot bones.

Key words: Penis; John Thomas Sign; Lower limb; Fracture

Introduction

John Thomas (JT) sign, inclination of the penis toward the hip or pelvic fracture in plain pelvic radiographs, has been described in the literature.^{1,2} It is considered positive if the penis shadow in pelvic X-ray point to the fractured hip. This sign have little diagnostic or prognostic value.^{1,2}

Over more than ten years of orthopedic trauma surgery, senior author found out that JT sign often was directed to the fractured lower limb not only to the fractured pelvis but also to the other fractured part of the lower limb. We assessed the correlation of this sign to all fractured parts of the lower limb.

Methods

Plain pelvic radiographs of 500 men were evaluated during one year. Fracture in only one part of one lower extremity was proven in all patients. Patients were victim of high-energy trauma without concomitant significant abdomen, chest, and head injury. Soft tissue shadow of the penis toward the fractured limb was considered positive sign.

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Results

Mean age of cases was 36 years old (range: 14 to 84). Overall JT sign was positive in 87.8% of cases with the strongest positive correlation in patients with hip fractures including acetabulum, femoral neck, intertrochantric, subtrochantric fractures, and hip fracture dislocations (91.9%). As shown in (Tab. 1), foot bone fractures had the weakest link to JT sign (66.6%).

Type of fracture	Number of positive sign (percentage)	Number of Negative sign (percentage)	Total
Hip and acetabulum fracture	91 (91.9%)	8 (8.1%)	99
Femoral shaft fracture	59 (89.4%)	7 (10.6%)	66
Distal femur fracture	9 (90.0%)	1 (10.0%)	10
Patella fracture	6 (85.7%)	1 (14.3%)	7
Knee fractures (posterior cruciate ligament avulsion,...)	18 (81.8%)	4 (18.2%)	22
Tibial plateau fracture	54 (90.0%)	6 (10.0%)	60
Tibial fracture	117 (90.0%)	13 (10.0%)	130
Tibial plafond fracture	37 (82.2%)	8 (17.8%)	45
Ankle fractures	38 (32.6%)	8 (17.4%)	46
Foot fractures	10 (66.6%)	5 (33.4%)	15
Total	439 (87.8%)	61 (12.2%)	500

Table 1: Number (Percentage) of positive and negative JT sign in each fracture group

Discussion

JT sign, named Solooki sign in our hospital, has low sensitivity, specificity, and positive predictive value for diagnosis of the hip fractures.^{1,2} This is maybe due to tendency of flaccid penis to incline to the left side. This asymmetry has some correlation with handedness, testicular asymmetry, and sexual organ cancers.^{3,4} Previous researches^{1,2,3} have shown its poor diagnostic accuracy for hip fractures. Results of our study showed high percentage of positive sign in fractures of the other part of the lower limb. We didn't compare the results with control group because the aim of this study was to determine JT sign as a clue to diagnose. Exact diagnosis must be done by radiographs and not by JT sign.

In conclusion, JT sign can be a clue to determine the possible fractured limb not only in pelvis but also in other parts.

References

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