

# John Thomas Sign: Truth or Myth?

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## Abstract

**Objective:** The purpose of this study was to evaluate the diagnostic accuracy of John Thomas sign.

**Materials & Methods:** Plain pelvic radiographs of 100 males with hip fractures were retrospectively compared against those for 100 males with no hip fractures. The direction of penile shadow was noted.

**Results:** John Thomas sign showed sensitivity of 30% and specificity of 86% (95% confidence interval 21.2 - 40.0%, and 77.6 - 92.1% respectively).

**Conclusion:** The use of John Thomas sign remains limited to introducing humorous atmosphere in orthopedic meetings as the sign is clinically unreliable.

## INTRODUCTION

John Thomas sign (JT), also known as the Throckmorton sign, describes the relationship of the direction of the penile shadow on plain pelvic radiographs to the side of the pathology or more commonly a fracture. The sign is considered positive if the penis, or its radiographic shadow, pointed towards the side of the fracture at the time the radiograph is performed (Figure 1), and negative if it did not.

### Figure 1

Figure 1: Positive John Thomas sign in a patient presenting with right hip intra-capsular fracture.



Unsurprisingly, so far, utilization of this sign has been limited to the introduction of humorous atmosphere during orthopaedic meetings. A recent report suggested that demonstrating JT sign in the clinical assessment of patients with suspected hip fractures can be as useful as the presence of limb shortening or external rotation before radiographs are obtained.[1]

This retrospective study aimed to look into the accuracy of JT sign before impending on including inspection of the penile direction as part of the clinical assessment of male patients presenting with suspected hip fractures.

## METHODS

We reviewed randomly collected antero-posterior pelvic radiographs for male patients presented to the emergency department with suspected hip fractures over the period between January 2004 and September 2006. Two groups were included. Group 1: 100 patients with radiologically proven hip fractures; group 2: 100 patients with no hip fractures. Each group was further subdivided according to the direction of the penile shadow on the radiograph into right, left or equivocal (midline). In group 1, the fracture side was noted (60 left and 40 right) and JT sign was considered positive if the penile shadow was pointing to the side of the fracture. Mean age was 75.3 years for group 1 and 73.9 years for group 2 (median 80.8, 80.5 respectively).

The statistical analysis was performed using StatsDirect software (Version 2.6.2, February 2007).

## **RESULTS**

In groups 1 and 2 the penile shadow pointed to the left in 29, 20 and to the right in 16, 4 patients respectively. It pointed to the suspected side in 30 patients in group 1 and 14 in group 2. JT sign had sensitivity of 30.0% (95% confidence interval 21.2% to 40.0%) and specificity of 86.0% (77.6 - 92.1%). Positive and negative predictive values were 68.2% (52.4 - 81.4%) and 55.1% (47.0 - 63.0%) respectively. The number of patients whose penis pointed to either side (right or left) rather than the midline, irrespective to the painful side, was significantly higher in those who had fractures ( $p=0.002$ , Fisher's exact test), and in younger patients ( $p<0.0001$ , Mann Whitney U test).

## **DISCUSSION**

Previous studies suggested that the flaccid penis tends to incline to the left side more than the right,<sup>[2]</sup> while other reports suggested a link with handedness,<sup>[2]</sup> or testicular asymmetry.<sup>[3]</sup> This may affect the accuracy of the penis as a pointer to the fractured hip. In addition, the position of the penis in patients presenting with suspected hip injury can be affected by other factors such as the position of the patient, tightness of clothing around the groin area, or the presence of a catheter. This can explain the poor diagnostic accuracy

of JT sign in this study.

Interestingly, it was noticed that the penis tends to incline to either side more than the midline, regardless of the side or the presence of a fracture, in younger patients and in those who had fractures. This may be related to pain or other possible factors, but the authors have no true explanation for this.

Owing to the poor diagnostic accuracy of JT sign, as observed in this study, and considering that plain radiographs are still to be performed for confirmation of diagnosis and determination of fracture pattern in suspected hip fracture patients, the authors find no clinical applications to John Thomas sign.

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## **References**

1. Thomas MC, Lyons BD, Walker RJ. John Thomas sign: common distraction or useful pointer? *Med J Aust* 1998;169:670.
2. Bogaert AF. Genital asymmetry in men. *Hum Reprod* 1997;12:68-72.
3. Chang KS, Hsu FK, Chan ST, Chan YB. Scrotal asymmetry and handedness. *J Anat* 1960 ;94:543-8

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