



## A duplicate obturator foramen — a report of rare variation

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### ABSTRACT

In present study, occurrence of double obturator foramen and canal in the iliac fossa of right hip bone has been found. Knowledge of such variant may be clinically important for radiologists interpreting radiograms and surgeons performing operative procedures in the hip region. © IJAV. 2011; 4: 155–156.

**Key words** [obturator foramen] [obturator membrane] [iliac foramen] [transobturator sling] [pelvic osteotomy]

### Introduction

The obturator foramen is a large opening in the hip bone. It is bounded superiorly by the obturator surface of the pubic body and the obturator groove; inferiorly by the ischial and inferior pubic rami; anteriorly by the superior and inferior pubic rami; and posteriorly by the ischial ramus.

The obturator foramen is almost closed by obturator membrane which is attached to its margins, except above near obturator groove, where communication remains between the pelvis and thigh (obturator canal); this free edge is attached to an anterior obturator tubercle at the anterior end of the inferior border of the superior pubic ramus and a posterior obturator tubercle on the anterior border of acetabular notch. The contents of the obturator canal include nerve to the obturator externus and obturator artery, (superomedially), obturator vein (inferomedially), and anterior and posterior divisions of the obturator nerve (superolaterally), which lay within the obturator groove [1].

Knowledge and awareness of variations in the foramina associated with the obturator foramen may be of immense clinical importance to surgeons and radiologists.

### Case Report

We found the variant of obturator foramen in a young right hip bone. Large and oval obturator foramen and everted

conjoint ischiopubic rami confirmed the male sex. Its anatomical features were studied in detail by examination of the lateral and pelvic surfaces and appropriate morphometric measurements were taken. Obturator canal was closed by a plate of bone inferiorly to form a complete opening. The plate of bone surrounding the obturator canal could be traced to the superior pubic ramus. The maximum transverse and vertical dimensions of the opening measured 1.6 cm and 1.7 cm, respectively. In the same innominate bone, canal was seen in the iliac fossa 6.0 cm from anterior superior iliac spine and 2.0 cm from iliac crest. In addition to that, there was large depressed area close to the medial border of ilium.

### Discussion

Conversion of obturator groove into bony foramen has been reported [2]. Karantanas et al. found a case of a double obturator foramen, which had been detected in x-ray film [3]. A triplicate obturator foramina was also reported by Das et al. [4]. The presence of a plate of bone in the obturator foramen may lead to compression of the nerves and blood vessels with neurological and vascular effects. The literature available on morphology of the obturator foramen and associated openings is less. The obturator foramen has been studied in detail to find out the potential risks to the dorsal nerve of the penis and to the obturator canal when different slings are



**Figure 1.** Photograph showing double obturator foramina (1), canal in the iliac fossa (2) and depressed area in iliac fossa (3).

used [5]. Researchers have also studied the obturator region to analyze the relationships of the trans-obturator sling and anatomical structures within the obturator region [6]. The obturator region has also been used for cystocele repair by a synthetic vaginal mesh, which is secured anteriorly through the obturator foramen [7]. This region is also a route for the management of short-pediced undescended testicle [8].

Pelvic osteotomy also requires prior anatomical knowledge of the obturator region. In the light of the above facts, the importance of the obturator foramen cannot be overlooked in clinical practice.

Such a rare variation may be due to ossification of upper margin of obturator membrane. Second author in his experience of more than four decades in anatomy has found this type of variant for the first time. The exact cause for this ossification is not clearly understood but possibly could be due to unusual obturator vessels.

The canal seen in the iliac fossa could be for communication of an external pelvic vein with an internal pelvic vein [2].

Detailed knowledge of regional anatomy is required when exploring new techniques. Thus the use and popularity of a new technique, tension-free vaginal tape has lead to significant vascular and bowel injuries that may have been avoided with improved familiarity with the anatomy of obturator region.

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