

Case Report

BILATERAL OCCURRENCE OF THE VESTIGIAL MUSCLE PSOAS MINOR

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ABSTRACT

Muscles which regress during the process of evolution are called as vestigial muscles. One of them in humans is psoas minor, which sometimes forms a part of the posterior abdominal wall. It is clinically significant in relation to sports medicine and as a differential diagnosis for certain conditions. The following article presents a case report in a 60 year old male cadaver with bilateral psoas minor.

KEY WORDS: Psoas Minor, Vestigial Muscle, Posterior Abdominal Wall, Psoas Minor Syndrome.

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INTRODUCTION

The muscles of posterior abdominal wall include psoas major, quadratus lumborum and iliacus. There can be an occurrence of a variable muscle called psoas minor, which could be unilaterally or bilaterally present.

Psoas minor, if present, will be located lateral to the lumbar spines and in front of the belly of psoas major. It is seen to have a small belly and a long tendon [1].

This muscle arises from the sides of bodies of T₁₂ and L₁ and the intervening intervertebral disc. It inserts into the iliopubic eminence, pectineal line and iliac fascia. The nerve supply for the muscle is derived from the ventral ramus of the first lumbar spinal nerve. It acts as a weak flexor of the trunk [2].

In quadrupeds that brachiate, leap or run fast, the muscle is seen to be well developed. It recedes in plantigrade man, however, in the profession of sports which needs speed, its presence is significant. Thus, the psoas minor muscle has clinical as well as evolutionary significance [3].

CASE REPORT

During routine dissection of a male cadaver aged around 55- 60 years, in the department of Anatomy, Sri Manakula Vinayagar Medical College and Hospital, India, it was observed that psoas minor was present bilaterally.

The muscle was seen to arise from the sides of bodies of the T₁₂ and L₁ vertebrae. The origin was fleshy and short. Distally it became tendinous and blended with the psoas fascia near the iliopubic eminence.

Fig. 1: Shows the Psoas minor muscle on both sides.

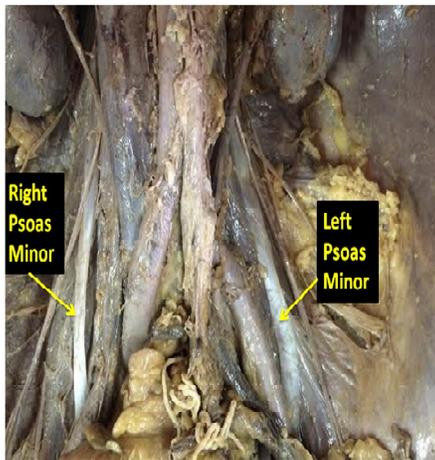


Fig 2: Shows the tendon of psoas minor on the left side.

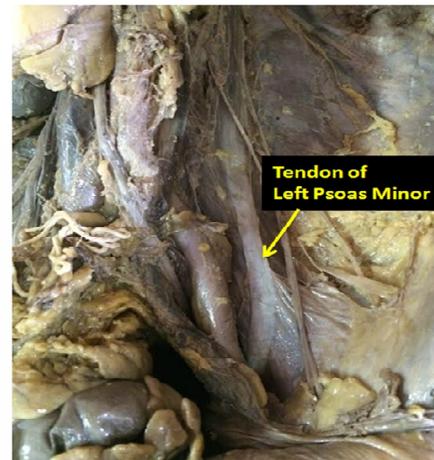
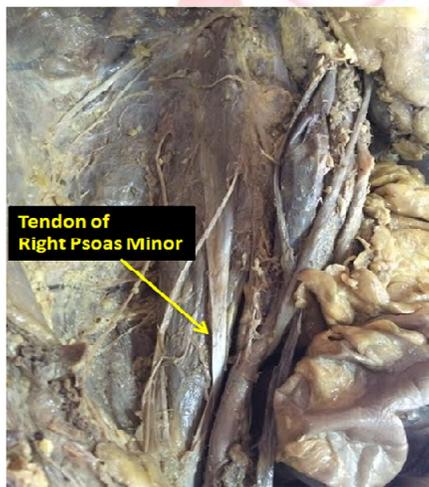


Fig. 3: Shows the tendon of psoas minor on the right side.



In a study by Hanson P et al. in 1999, among 44 cadavers, reported that there was absence of psoas minor muscle in 91% of Afro Caribbeans and 13% of Caucasians [6].

In 2014, Farias et al. reported the absence of psoas minor muscle in 73% of Brazilian population [7].

Joshi et al. in 2010 stated that the psoas minor muscle plays an important role in the flexion of lumbar vertebrae and is well developed in rabbits and apes. In his study on 30 cadavers, he concluded that the psoas minor was absent in 70% population [8].

In relation to its clinical significance, strain of the psoas minor muscle leads to pain in the inguinal region extending to the abdominal wall and testis. It can also cause upto 50% reduction in the range of hip movement. Such injuries are commonly seen in sports professions like golf and football [3].

In cases where the psoas minor muscle fails to keep pace with the growth of the pelvis, it can also lead to development of the psoas minor syndrome, wherein, the patient complains of pain in the corresponding iliac fossa. Symptoms appear due to compression of the neurovascular structures in the retroperitoneum. This condition generally requires a tenotomy [3].

DISCUSSION

During the course of evolution, some muscles of the human body regress and are called as vestigial muscles, which are recognized by their short belly and long tendon namely Palmaris longus in upper limb, Plantaris in lower limb and Psoas minor in the trunk. Psoas minor is found only in 40- 60% of population. However, the incidence varies with race and ethnicity [3,4].

Sonali A et al. in 2013 conducted a study in 20 cadavers to study the morphology of the psoas minor muscle and reported that the muscle was present bilaterally in 35% and unilaterally in 5 % [3].

Seib GA, in 1934, conducted a study to determine the racial discrepancies in the occurrence of psoas minor muscle. He found that, the muscle was present in 50% of Orientals, 43% of Caucasians and 33% in Afro Caribbean population [5].

CONCLUSION

The psoas minor is present in 40- 60% of subjects. Hence, problems associated with psoas minor can be an important differential diagnosis for conditions like appendicitis and restriction of movements at the hip joint. Psoas minor can be affected as a result of sports

injuries. Therefore, awareness of its occurrence is essential to clinicians for proper diagnosis and treatment.

Conflicts of Interests: None

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