

## **Abnormal Relation between Sciatic nerve and Piriformis – A Case Report**

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**Abstract:** The main Aim of the study is to report anatomic variation in sciatic nerve in cadaveric dissection. The type of study is Case report, during routine undergraduate dissection in a middle aged male cadaver; we found that the sciatic nerve divided in buttock into common peroneal and tibial nerve. Then the common peroneal nerve pierced the piriformis muscle and divided the muscle into two parts and the tibial nerve passed below the muscle. Common peroneal nerve descended laterally in the thigh and gave a branch to short head of biceps femoris and thereafter distributed to the muscles and skin on the anterolateral aspect of the leg and dorsum of the foot. Tibial nerve descended medially and gave branches to upper part of hamstring muscles arising from the ischial tuberosity while it is still in the buttock and upper part of the thigh. It is continued into the leg and foot to supply muscles and skin of the posterior aspect of the leg and sole of the foot. Coccygodynia and sciatic pain have been attributed to abnormal relations between the piriformis muscle and the sciatic nerve; so awareness of such variation is helpful for assessment.

**Keywords:** sciatic nerve, peroneal nerve, ischial tuberosity

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### **INTRODUCTION**

The sciatic nerve [SN] is formed in the pelvis by joining anterior divisions of L4-S3 spinal nerve roots. It is almost 2cm wide at its origin near the sacral plexus. Two separate nerve trunks [the Tibial Nerve and Common Fibular Nerve] developed by a common facial sheath [epineural sheath] can be distinguished from the onset. These two trunks leave the pelvis through the greater sciatic foramen below the piriformis. The nerve passes along the back of the thigh, and divides into the Tibial nerve [TN] and common fibular nerve [CFN] proximal to the knee.

### **CASE REPORT:**

During routine undergraduate dissection in a middle aged male cadaver, we found that the sciatic nerve divided in left gluteal region into common peroneal and tibial nerve[1]. Then the common peroneal nerve pierced the piriformis muscle and divided two parts and tibial nerve passed below the muscle [fig.1]. Common peroneal nerve descended laterally in the thigh and gave a branch to short head of biceps femoris and thereafter distributed to the muscles and skin on the anterolateral aspect of leg and dorsum of the foot. Tibial nerve descended medially and gave branches to upper part of hamstring muscles arising from the ischial tuberosity while it is still in the gluteal region and upper part of the thigh. It continued into the leg and foot to supply muscles and skin of the posterior aspect of the leg and sole of the foot. Sciatic nerve on the right side was normal [fig.2].



**Fig-1: Left sciatic nerve got divided in gluteal region and piercing the piriformis muscle.**



**Fig-2: Rt sciatic nerve normal and passing below the piriformis muscle.**

**DISCUSSION**

Variations of sciatic nerve in relation with piriformis muscle have been widely studied by anatomists and clinicians. Beaton & Anson classified

variations of the piriformis and SN in specimens in 1937 and in 240 specimens in 1938 [4,5]. Their classification known as the Beaton & Anson classification is as follows:

- Type 1: Undivided nerve below undivided muscle.
- Type 2: Divisions of nerve between and below undivided muscle
- Type 3: Divisions above and below undivided muscle
- Type 4: Undivided nerve between heads
- Type 5: Divisions between and above heads
- Type 6: Undivided nerve above and undivided muscle

Coccygodynia and sciatic pain have been attributed to abnormal relations between the piriformis muscle and the sciatic nerve. Robinson described the “piriformis syndrome” as consisting of pain and tenderness over the lower part of the sacroiliac joint, the greater sciatic notch, and the piriformis muscle and sometimes pain in the hip and gluteal atrophy.

**Table-1: Variations in the High Division of the Sciatic Nerve and Relationship Between the Sciatic Nerve and the Piriformis.**

	TYPE 1	TYPE 2	TYPE 3	TYPE 4	TYPE 5	TYPE 6
Beaton & Anson[2] 120 cadavers	84.2%	11.7%	3.3%	0.8%		
Beaton [3] 250 cadavers	90%	7.1%	2.1%	0.8%		
Moore & Dalley [5] 650 extremities		12.2%	0.5%			
Pokorny et al [6] 91 cadavers	79.1%	14.3%	4.4%	2.2%		
Present case report (5 cadavers)		1 case reported [unilateral]				

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