



A PERINEAL BRANCH OF THE SCIATIC NERVE: A CASE REPORT

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INTRODUCTION

The sciatic nerve (SN), the largest nerve in the body, arises from the lumbosacral plexus (Standring et al., 2015). It enters the gluteal region at the infra-piriformic compartment of the greater sciatic foramen closely accompanied by the posterior femoral cutaneous nerve (PFCN) as a posteromedial relation. Lying deep to the gluteus maximus muscle, its other major neural relation is the inferior gluteal nerve-IFN (Moore et al., 2014). Recently, the existence of a perineal branch of the SN was reported thus

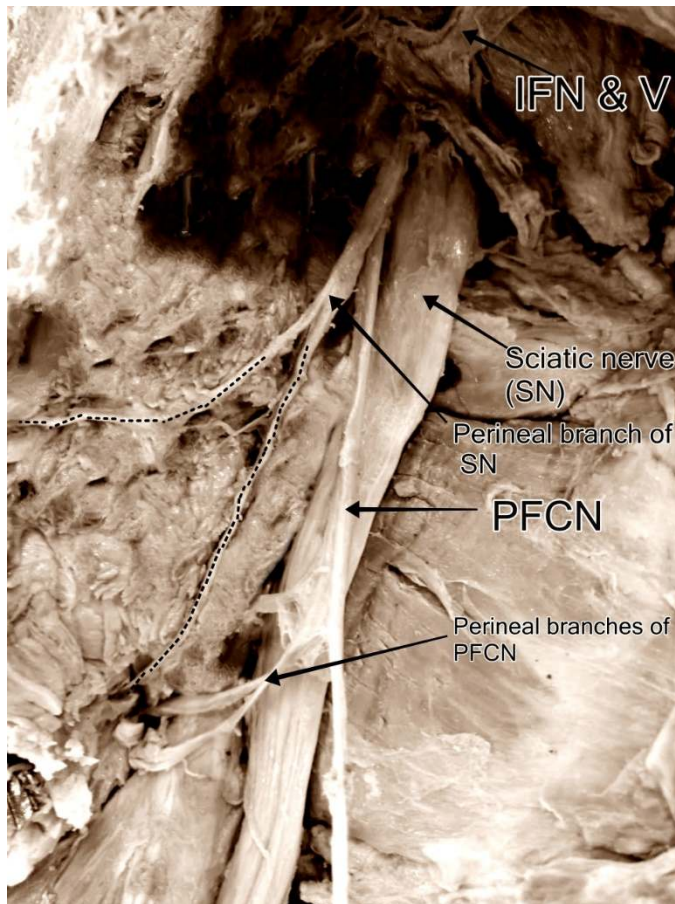
questioning the pre-existing fact that the SN only has distribution to the posterior thigh, knee, leg and foot (Gibbs et al 2018). The author further reported direct perineal branches from the SN as well as neural communications between the perineal branch and the PFCN. Previously, only the PFCN was described to give branches to the perineal skin (Ploteau et al., 2017; Tubbs et al., 2009) and to our knowledge, no other literature has described perineal branches of the sciatic nerve.

METHODS AND CASE REPORT

We report a case of a direct perineal branch of SN encountered during routine student dissection at the Department of Human Anatomy, University of Nairobi. In addition, the study describes a perforating branch of this nerve that pierces the gluteus maximus muscle to a cutaneous distribution of the lower inner quadrant of the gluteal region. The cadaver was that of a black, middle aged man of average height who was of Kenyan origin. No muscular or neurological pathology was noted.

The branch was noted originating from the main trunk of the SN just inferior to the

piriformis and coursing inferiorly and medially towards the perineal skin fold. It was carefully traced by blunt dissection taking care not to damage it. The nerve was traced all the way to the skin fold adjacent to the scrotum. While tracing the course of this variant nerve, it was noted that it gave a branch that pierced the gluteus maximus on its deep surface. This branch was traced to identify its course through the gluteus maximus by dissecting out the muscle fibers through which it was passing. It was finally traced to the surface of the gluteus maximus muscle. Photos of the variations noted were subsequently taken.



Legend: Figure showing the perineal branches of the sciatic nerve (SN) and of the posterior femoral cutaneous nerve (PFCN). Notice the dotted lines tracing the two branches of the nerve; to the skin of the lower gluteal region (left) and to the perineal region (right). Also shown is the bundle of the inferior gluteal nerve and vessels (IFN & V) coursing to the deep surface of the gluteus maximus muscle.

DISCUSSION

In the previous study, this branch was hypothesized to provide cutaneous innervation to a portion of the perineum alongside the perineal branch of the posterior femoral cutaneous PFCN. This nerve was visualized in 10 out of 21 cadavers of mean age at death= 91.8 ± 10.6 years, arising from the sciatic nerve at an average distance of 0.6cm distal to the piriformis muscle. It exhibited three variants: in approximately half of the cases, this nerve was a contribution to the perineal branch of the PFC nerve while the other half, it was definite branch of the SN to the perineum. In one case, there were two of these variants arising independently from the SN. Coursing towards the perineum, this nerve passed posterior to the ischial tuberosity in three

cases, posterior to the conjoint tendon (of biceps femoris and semitendinosus) in four cases, and posterior to the sacrotuberous ligament in one specimen (Gibbs et al., 2018).

Due to the fact that this novel branch appears to arise from the tibial (medial) component of the SN, authors speculate it comprises of nerve fibres from the anterior divisions of the ventral rami of L4-5 and S1-3 but also state a possibility of these fibres being branches of the PFC nerve that "hitchhiked" on the sciatic nerve for a longer than usual distance. Further anatomical studies are recommended to comprehensively answer this question.

Knowledge of a perineal branch of the sciatic nerve is important during surgical approaches to the posterior thigh such as during surgical treatment of proximal hamstring injuries (Harris et al., 2011). In a number of cases, patients have presented with post-operative symptoms such as pain or numbness in the perineal region, attributable to iatrogenic injury to the

perineal branch of the PFC nerve (Cohen et al., 2012).

CONCLUSION

The possible presence of a different branch from the sciatic nerve should be taken into consideration by surgeons operating in this area in order to prevent such outcomes and in designing therapeutic interventions.

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