Case Report

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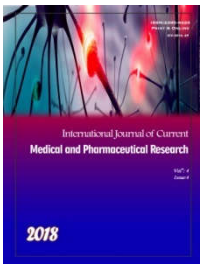

A CASE REPORT ON 'K CELLS' - PNEUMATISED SUPRAMEATAL SPINE, A PECULIAR ANATOMICAL VARIATION

Kamal Deep Joshi and Pankaj Kumar Sahu

Dr Kamal Deep Joshi, MS(ENT), DEPT of ENT, Military Hospital, Roorkee, India – 247667

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ABSTRACT

Suprameatal spine (Spine of Henle) is an important surgical landmark on lateral surface of temporal bone. Several types and dimensions of this anatomical entity have been described in literature. However a pneumatised supremeatal spine has not been described. Presence of such rare, unreported anatomical variation may create a confusion, especially for a novice surgeon. This case report presents a rare anatomical pneumatised variant of supremeatal spine and proposes an eponym 'K cell' for it. The aim of this report is to encourage reporting of such variant more frequently, so that suitable modification in current classification can be done.

INTRODUCTION

Suprameatal spine (Spine of Henle) is an important anatomical landmark for otological surgeons. This landmark is variable both in position and in size and shape as well. A detailed knowledge of these variations is essential for all the surgeons performing various otological surgeries. In this case report, a highly unusual variation of Suprameatal spine is reported which was encountered during tympanoplasty in left ear. Pneumatised Suprameatal spine has not been described in any of the well-known anatomical description and appear to be a rare variant. A more concise eponym 'K cells' is being proposed for the pneumatised Suprameatal spine in the report.

Case History

The rare pneumatised variant of suprameatal spine was an incidental finding in a case of chronic otitis media (mucosal type) of left ear. As the variant is not described in present known literature, it was unsuspected. A 44 years old male, presented with complaints of otorrhoea for past six years. He was diagnosed as a case of chronic otitis media (mucosal type) left ear and a tympanoplasty (Left) was planned for him. Intraoperatively, post auricular approach was adopted and meatotomy was performed. While raising the tympanomeatal flap, it was observed that supremeatal spine was large and rounded. As the suprameatal spine was hindering the view of the external auditory canal, it was decided to reduce the size of suprameatal spine with help of otological drill and curette. However as soon as drill was applied, the anterior wall of pneumatised suprameatal spine collapsed. As shown in Figure 1, tympanomeatal flap is positioned medially and anteriorly to Suprameatal spine. The Suprameatal spine was rounded, large, protruding and not crest-like or triangular. Suprameatal triangle and external auditory canal with suprameatal spine has been marked in Figures 2.

DISCUSSION

The Supremeatal spine or Spine of Henle is one of the first landmark on lateral surface of temporal bone, which is consistently identified by otologist, neurotologists and neurosurgeons. Besides giving an estimation of relative location of other critical structure like mastoid antrum and middle cranial fossa dura, the suprameatal spine identification and preservation during surgery is also important for safe drilling and bone removal. According to a study conducted by Ulug *et al* (1), distance of various anatomical landmarks can be judged from Suprameatal spine. Distance from Henle's spine to the spine of the sphenoid along spinopterygoid line was found to be about 3 cm. Also the distance between foramen spinosum and stylomastoid foramen was found to be 3.5 cm and 1.5 cm respectively.

Distance of other important landmarks from suprameatal spine is as follows (1):

Posterior margins of the foramen ovale- 4cm
Anterior margins of the foramen ovale- 4.5 cm
Root of the lateral pterygoid plate- 5 cm
Root of the medial pterygoid plate 5.5 cm

Corresponding author:* **Kamal Deep Joshi
Dr Kamal Deep Joshi, MS (ENT), DEPT of ENT, Military Hospital, Roorkee, India -247667.

Vomer- 6.5-7 cm
Lateral margins of the jugular foramen- 2.5cm
Medial margins of the jugular foramen- 3.5 cm
External orifice of the hypoglossal canal- 4 cm
Foramen magnum- 5 cm

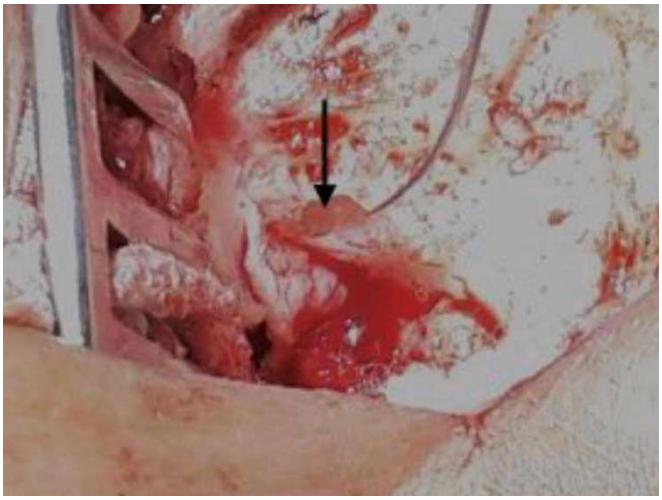

Figure 1: Pneumatised cavity (black arrow) of supremeatal spine after removal of anterior wall

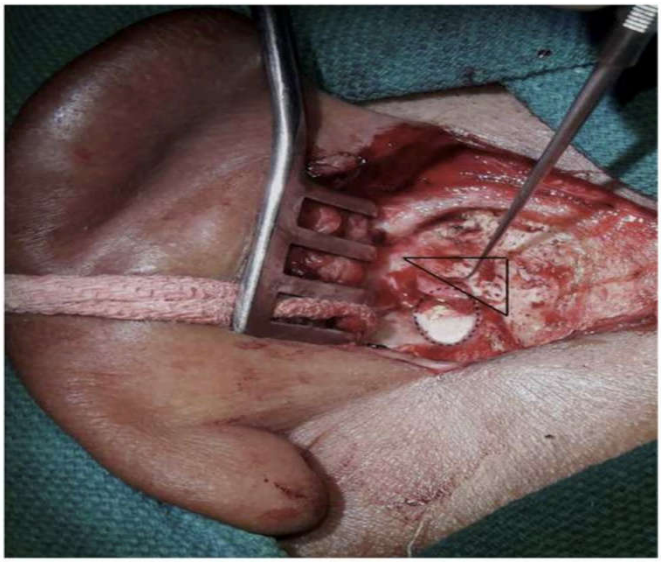

Figure 2: External auditory canal (dotted circle) filled with gel foam, supremeatal triangle (black triangle) and supremeatal spine (indicated by instrument) with tempanomeatal flap repositioned

There are many anatomical variation in size and shape of Suprameatal spine as mentioned in literature. Aslan *et al*. have found that triangular type of Suprameatal spine has deeper mastoid antrum and also correlate with shorter distance between middle cranial fossa dura and lateral semi circular canal (LSCC). The average distance between Suprameatal spine and LSCC is 15 mm on average and the distance is greater in triangular Suprameatal spine compared to crest type Suprameatal spine(2). As described by Anson and Donaldson, Suprameatal spine can be small and smooth, sharp and long or absent. (3) According to Asian *et al* it can be triangular, crest type or absent with relative frequency 40%, 40% and 20%.

In their study, Peker *et al*. have mentioned that dimension of Suprameatal spine can vary between small (< 1.5mm), medium (1.5 -2.5mm) and large (> 2.5 mm). The commonest variation amongst these dimensions is of small variety. (4) Even though a number of variation are mentioned in literature, a pneumatised suprameatal spine is rare and yet to be presented in literature. The pneumatisation of Suprameatal spine is part of pneumatic spaces of temporal bone and can belong to pneumatisation of mastoid region (5). A through literature search did not revealed mention of this or similar entity previously. An eponym 'K cell' is being proposed by authors for pneumatised suprameatal spine.

Since it is a rare variation encountered in pattern of pneumatisation of mastoid and is surgically important, it is emphasized that such variation may further be reported from different centers. Suitable modification of present classification system can be done in current classification systems of Suprameatal spine with incorporation of this rare pneumatised variant.

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