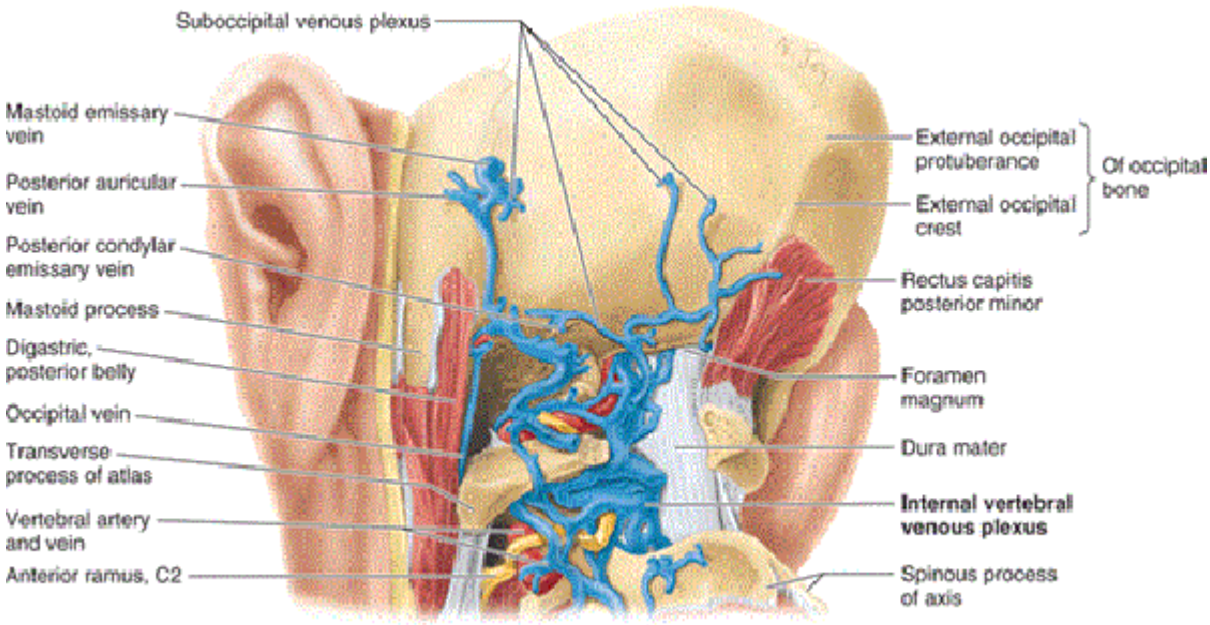
Mastoid emissary vein



Posterolateral view

The mastoid emissary vein drains superolaterally into the sigmoid sinus.

For a craniotomy if the asterion [1], is not easily identified place the burr hole over the mastoid emissary vein.

It is especially important from the neurosurgical point of view, because it is located in variable number in the area of the occipitomastoid suture and it can become a source of significant bleeding in surgical approaches through the mastoid process, especially in retrosigmoid craniotomy, which is used for approaches to pathologies localized in the cerebellopontine angle.

Kim et al., conducted a study on 106 cadaveric dry skull specimens looking at the incidence, position and caliber of mastoid emissary foramina. 83.7% of skulls were found to have at least one foramen with a mean diameter of 1.64 mm and the largest specimen measuring 7 mm [2].

Ideal imaging method for diagnosis of these neglected structures when planning a surgical approach is high-resolution computed tomography.

Hampl et al., studied a group of 295 skulls obtained from collections of five anatomy departments and the National Museum of the Czech Republic. Both quantitative and qualitative parameters of the mastoid foramen were evaluated depending on side of appearance and gender. Individual distances of the mastoid foramen from clearly defined surface landmarks (asterion, apex of mastoid process, foramen magnum) and other anatomical structures closely related to this issue (width of groove for sigmoid sinus, diameters of internal and external openings of mastoid foramen) were statistically processed.

The most frequently represented type of the mastoid foramen is type II by Louis (41.2%). The differences between right and left sides were not statistically significant. In men there was a higher number of openings on the right side and in qualitative parameters the type III and IV predominated,

whereas in women the types I and II were more frequent. In men, greater distances from the mastoid foramen were observed when evaluating qualitative parameters for defined surface landmarks. Mean size of the external opening diameter was 1.3 mm; however, several openings measured up to 7 mm [3].

1)
Day JD, Tschabitscher M. Anatomic position of the asterion. Neurosurgery. 1998 Jan;42(1):198-9. PubMed PMID: 9442525.
2)
Kim LK, Ahn CS, Fernandes AE. Mastoid emissary vein: anatomy and clinical relevance in plastic & reconstructive surgery. J Plast Reconstr Aesthet Surg. 2014 Jun;67(6):775-80. doi: 10.1016/j.bjps.2014.03.002. Epub 2014 Mar 21. PubMed PMID: 24713148.
3)
Hampl M, Kachlik D, Kikalova K, Riemer R, Halaj M, Novak V, Stejskal P, Vaverka M, Hrabalek L, Krahulik D, Nanka O. Mastoid foramen, mastoid emissary vein and clinical implications in neurosurgery. Acta Neurochir (Wien). 2018 May 20. doi: 10.1007/s00701-018-3564-2. [Epub ahead of print] PubMed PMID: 29779186.