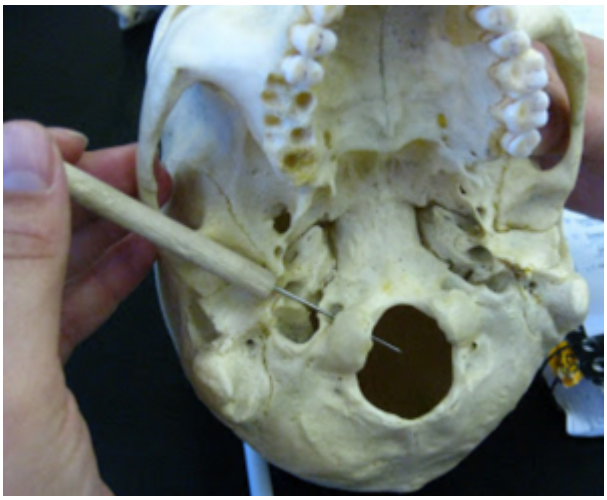
Hypoglossal canal

The hypoglossal canal is a bony canal in the occipital bone of the skull.



It transmits the hypoglossal nerve from its point of entry near the medulla oblongata to its exit from the base of the skull near the jugular foramen. It lies in the epiphyseal junction between the basiocciput and the jugular process of the occipital bone.

The hypoglossal canal has recently been used to try to determine the antiquity of human speech. Researchers have found that hominids who lived as long as 2 million years ago had the same size canal as that of modern day chimpanzees, some scientists thus assume they were incapable of speech. However, archaic H. sapiens 400,000 years ago had the same size canal as that of modern humans, meaning they could have been capable of speech. Some Neanderthals also had the same size hypoglossal canal as archaic H. sapiens. However recent studies involving several primate species have failed to find conclusive evidence of a relationship between its size and speech.

The hypoglossal canal is formed during the embryological stage of development in mammals, sometimes leading to the presence of more than two canals as the occipital bone is formed. Study of this area aids in the diagnosis of a variety of tumors found at the base of the skull, including: large glomus jugulare neoplasms, myelomas, and the occasional meningioma. Studies of the hypoglossal canal revolve around the development of safe drilling techniques to conduct surgery on that area of the brain.

Circumscribed lesions of the hypoglossal canal and of the jugular tubercle still remain a surgical challenge. So far, transpetrosal, transcondylar suboccipital, and extreme lateral approaches have been used to access this region. These surgical procedures bear a high risk for neurological deficits. Therefore, Gilsbach et al introduce a new minimally invasive extradural approach to the hypoglossal canal that also allows access to the lateral aspects of the jugular tubercle.