A STUDY OF HYPOGLOSSAL CANAL IN NORTH INDIAN CRANIA

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ABSTRACT

Studies of non metric cranial variants have been a field of considerable interest to research workers especially because of their racial and regional importance.

40 north Indian skulls of U.P. were studied for the double hypoglossal canal, a cranial variant in the present study. Findings are discussed and compared with other global studies and are found to be of considerable regional and racial significance.

Key Words:- Hypoglossal canal, anterior condylar canal, hypoglossal canal anomalies, cranial variant.

INTRODUCTION

Above each occipital condyle, anteriorly is a hypoglossal (anterior condylar) canal, directed laterally and slightly forward from the posterior cranial fossa. It may be partly or wholly divided by a spicule of bone and transmits the hypoglossal nerve and a meningeal branch of ascending pharyngeal artery. (Williams P L et al 1995)[1].

Non-metric cranial variants have been a subject of study by many pioneering workers (Todd and Tracy 1930)[2]. Many such variants have been observed on a racial basis also (Berry and Berry 1967)[3] and are of considerable ethnic but lesser forensic interest. Berry (1975) made a special study of non meterical human cranial variants including double hypoglossal canal.

Present study is undertaken to know the incidence of variant of double hypoglossal canal and to draw significant conclusion, if any, from this study.

MATERIAL AND METHODS

Forty north Indian human crania were studied for this study. Twenty human crania of museum of Rohilkhand medical college Bareilly and twenty human crania of Sri Ram Murti Smarak Institute of Medical Sciences Bareilly were studied.

Incidence of double hypoglossal canal was noted in these crania; attention was also paid to whether this variant was bilaterally present or unilaterally present and if unilateral whether it is more on right side or left side

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RESULTS

Out of 40 skulls studied double hypoglossal canal was seen only in 5 skulls (in 2 bilaterally& in 3 unilaterally on left side).Thus the incidence of this cranial variant was 12.5% .Out of these, it was bilaterally (fig.1).only in 5% cases. However, unilaterally it was present (fig.2) in 7.5% case

DISCUSSION

Cranial variants have aroused the curiosity of anatomists for many decades (e.g.Le Double,1903)[4].It was Wood Jones(1930-1)[5],however who first proposed that the differing incidences of these minor variants which occurred in different races might be useful in anthropological studies. Laughlin & Jorgensen(1956)[6] put this idea in practice and in 1967 Berry & Berry[3] suggested that a wide range of these variants could be used to calculate a distance statistic between population samples.

This paper is concerned with description and racial & regional incidence of double hypoglossal canal one of the important cranial variant.

Cranial variants like all other variants have been studied by many workers; most of them are recognized only by mention in anatomical text books, being described in terms such as rare or occasionally found; nevertheless a few of them have been utilized as anthropological markers (Broth well 1963,1965)[7,8] .Some variants are consequences of disease or other extrinsic influences (Moller-christensen & Sandison 1963[9],Roche 1964[10] and Dorsey 1897)[11];however most of these variants result from normal developmental processes and are genetically determined (Berry & Berry 1967)[3].

The frequency of any particular variant is more or less constant in a given race and is somewhat similar in

related races. Chambellan (1883)[12] seems to have been first to suggest the possibility of using such traits as anthropological characters.

Russel in 1900[13] gathered together data on a number of skull variants in American group and gave the first indication of their use in the comparison of populations .Woodjones(1930-31,1933-34)[14] used data on skull variants in a more systemic comparison number of far eastern group.

Berry (1975) made a special study of non metrical human cranial variations including the double hypoglossal canal. His findings are given in the table no.1

In our study: It was observed that double hypoglossal canal was present in 12.5% of crania. Out of these in 5% crania it was bilaterally present (fig. no. 1) and in 7.5% cases it was unilaterally present (fig. no. 2).

In north India (U.P.) the incidence of this variant was greater (12.5%) than in Nigeria, (11.6%), Palestine, (7%), Palestine modern (8.3%) and Burma (9.8%) and lesser than in Egypt, (16.6%), India (Punjab, (17.9%), North America (24%) and South America.(27.4%).

Hence the current study provides valuable data from U.P. the largest state of India, and compares the same with data of different global regions.

The findings are of considerable racial and regional global significance.

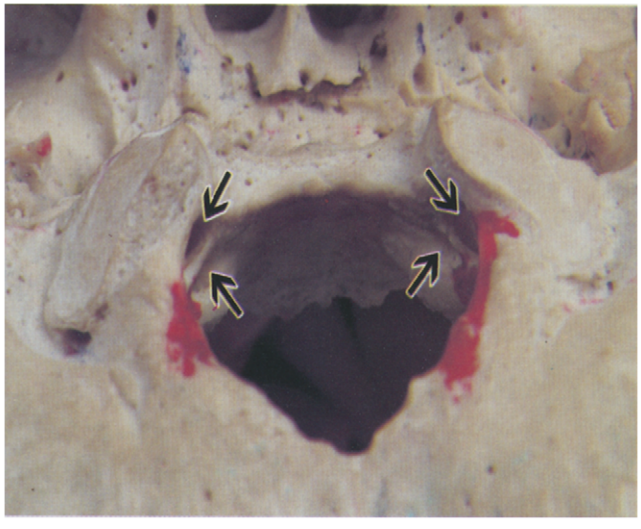

FIG-I : DOUBLE HYPOGLOSSAL CANAL (BILATERAL)

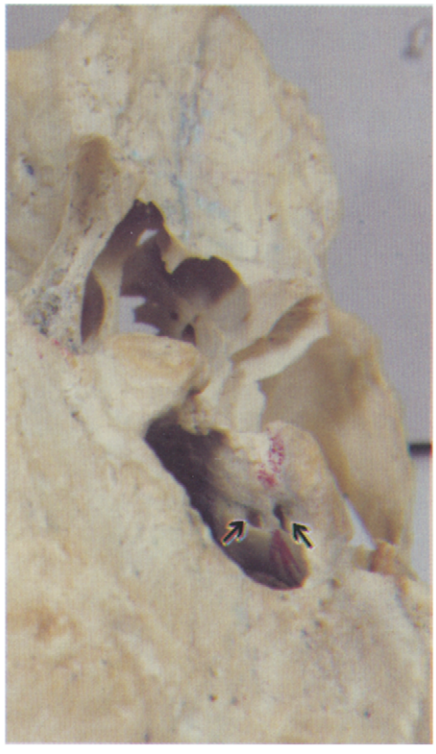

FIG-2 : DOUBLE HYPOGLOSSAL CANAL (UNILATERAL)

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Egypt (summed) 250 skulls	Nigeria (Ashanti) 56 skulls	Palestine (Lachish) 54 skulls	Palestine (Modern) 18 skulls	India (Punjab) 53 skulls	Burma 51 skulls	North America (British Columbia) 50 skulls	South America (Peru) 53 skulls	Our study (U.P) North India 40 skulls
16.6%	11.6%	7%	8.3%	17.9%	9.8%	24%	27.4%	12.5%

Table No.1- (BERRY-1975)[15]

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