

Anatomical Note

Canals for the greater palatine nerve and vessels in the hard palate

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INTRODUCTION

The bony palate is formed by the palatine processes of the maxillae and the horizontal plates of the palatine bones. There is considerable variation in the depth and breadth of the palatine vault. The inferior surface of bony palate adjacent to the alveolar margin is channelled by two grooves for the greater palatine vessels and nerves (Williams & Warwick, 1980) with a palatine spine between the grooves (Spalteholz, 1939; Hochstetter, 1948) and between the medial and lateral branches of the greater palatine nerve (Anderson, 1978). The present work reports the variations found on the inferior surface of the bony palate in the region of these grooves.

MATERIALS AND METHODS

Two hundred and eight human adult Nigerian bony palates of both sexes were examined for variations in the groove for the greater palatine vessels and nerves. Thirty fresh bony palates obtained from Nigerian cadavers were carefully dissected to study the course of the greater palatine vessels and nerves. Mucoperiosteum was carefully removed along their course leaving any bridges formed by fibrous bands and bony tissue.

OBSERVATIONS

Out of the 208 bony palates (dried skulls) examined the commonly described pattern was observed only in 28 cases, whereas the remaining 180 cases showed the presence of either a palatine spine or a bony canal. In 44 cases (21.1%) there was a unilateral spine, in 76 cases (36.5%) bilateral spines (Fig. 1), in 24 cases (11.5%) a unilateral bony canal, in 12 cases (5.7%) a bilateral bony canal (Fig. 2) and in 24 cases (11.5%) a unilateral spine and a unilateral bony canal were observed. Out of the 30 hard palates dissected, in 9 cases (30%) there was fibrous tissue bridging across the greater palatine groove thus forming an osseofibrous canal for the greater palatine nerve (Fig. 3). The medial branch of the greater palatine nerve (Anderson, 1978) was enclosed in the tunnel whereas the lateral branch was present in a groove lateral to the spine. No bony canals were observed in the dissections.

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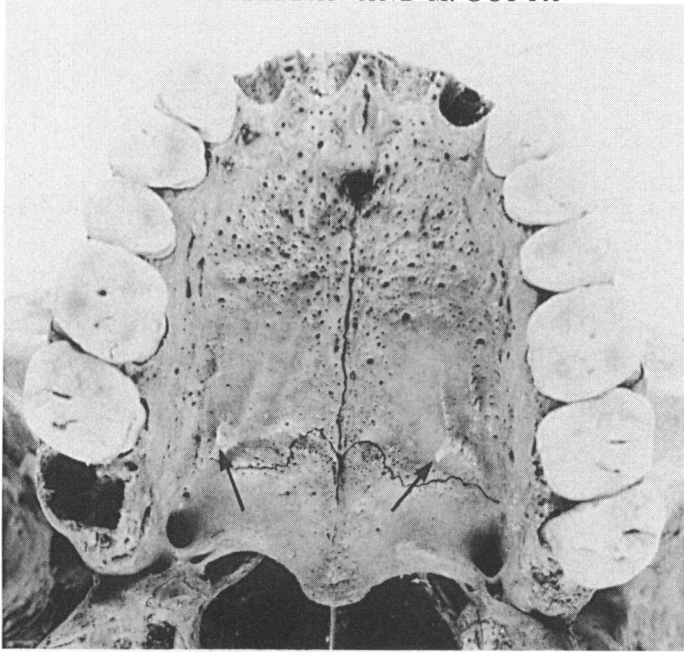


Fig. 1. Bony palate. Note the bilateral palatine spine (arrow).

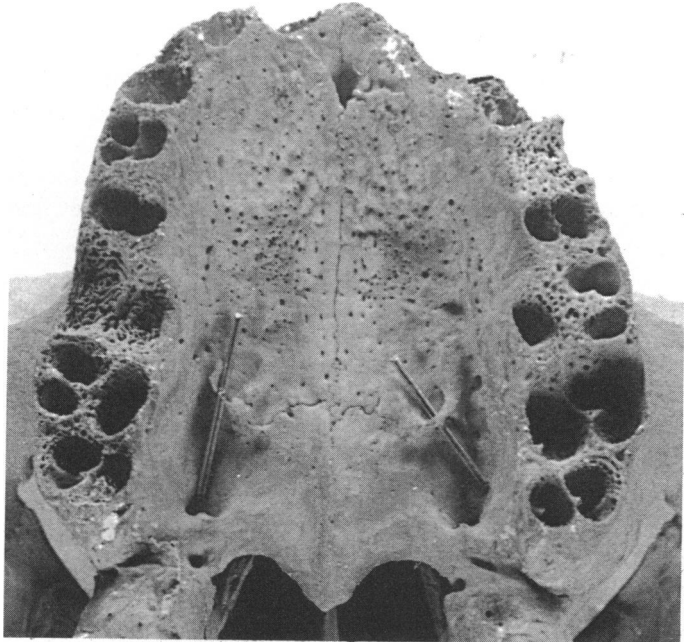


Fig. 2. Bony palate. Note the bilateral bony canal indicated by the probes.

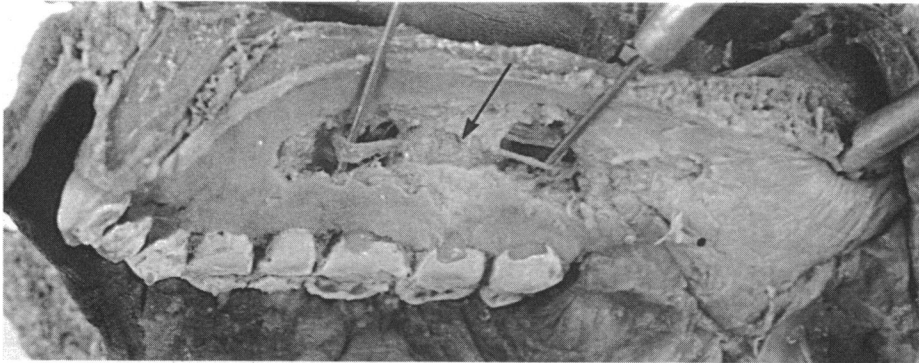


Fig. 3. Dissection of the inferior surface of the palate showing an osseofibrous canal (arrow).

DISCUSSION

The presence of a spine between the grooves for the greater palatine vessels and nerves has been described by Spalteholz (1939) and Hochstetter (1948) and the present work reports the presence of such a spine in 69% of cases. However, there is no report of this spine in many of the text book descriptions (Breathnach, 1965; Last, 1968; Williams & Warwick, 1980; Romanes, 1981; Hollinshead, 1982). The fibrous tissue forming the osseofibrous canal probably becomes ossified to form the bony canals that were observed in the present skeletal series. Such ossification of ligaments has been described in many situations such as in the pterygospinous, interclinoid and carotico-clinoid ligaments (Newton & Potts, 1971; Williams & Warwick, 1980). The presence of bony and osseofibrous canals probably explains the occasional difficulty in infiltrating the greater palatine nerve for local anaesthesia during surgery on the hard palate.

SUMMARY

This study was carried out on 208 Nigerian bony palates in dried skulls and on 30 palates obtained from Nigerian cadavers. Out of 208 dried skulls examined, there was a unilateral spine in 21.1% of cases, a bilateral spine in 36.5% and a bony canal in 5.7%. Of the dissected palates 30% revealed the presence of an osseofibrous canal.

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