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Some Unusual Dental Conditions in Sheep

ANOMALIE UZĘBIENIA OWCY

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Taylor R. M. S., 1986: Some unusual dental conditions in sheep. Acta theriol., 31, 40: 552—556 [With 3 Figs.]

This report is to place on record two instances of supernumerary teeth in sheep, and the finding of an unerupted malposed incisor in a third sheep. There is no history available concerning these particular cases, nor any attempt to explain or measure the incidence of supernumerary teeth in these animals. It is suggested that the malposed incisor could have resulted from injury. The suggestion is supported by analogy with injury to incisor teeth of children.

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1 INTRODUCTION

The writer is a dentist and anthropologist who has had a lifetime interest in comparative dental anatomy. New Zealand has many farms.

On the less hilly country various crops are grown and dairying permits the export of milk powder, butter and cheese. From the hill country come beef, hides, mutton, wool and venison. In some places it is not uncommon to find bleaching animal bones and they were always of interest. Some of these were added to the writer's collection which included comparable items obtained from various countries.

The specimens herein described were found casually on farms but since there are always many millions of sheep in New Zealand there are no breeding records available.

2. MATERIAL

Cases A and B. Early in 1984, on a Waikato farm, the writer picked up the skull of a sheep with additional fourth molars, left and right in the upper jaw (Fig. 1). The only other such case known to the

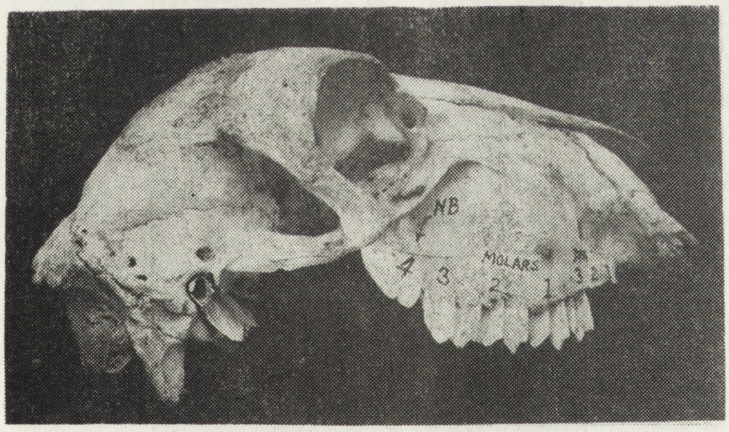

Fig. 1. Case A. Skull of sheep having maxillary fourth molars on left and right sides.

writer (amongst some hundreds of sheep skulls examined) was one he dug from a bank where high tide had exposed a sheep skeleton near Whangaroa, Northland, in 1947. In that skull there was one fourth molar, in upper jaw on right side (Fig. 2).

Many varying hypotheses have been presented to explain the origin of extra teeth in mammals. Wolsan (1984) gives an extensive reference list of the reporters (who deal with nearly all orders of recent mammals), and considers alternative interpretations to account for most of the teeth hitherto described.

The fourth molars in sheep would come into his second interpretation

which may apply to supernumerary teeth appearing in any position, and these teeth are similar in shape to an adjacent one in a tooth row. They suggest a common origin where a supernumerary tooth germ originates as a result of complete splitting of a tooth germ. He suggests that the ability for such a splitting may be inherited, or due to a mutation or a disturbance or change in the genetic control of tooth development. The present writer tactfully refrains from further development of Wolsan's suggestions, with the excuse that he does not possess the family tree of either of the sheep here represented.

Case C. In Fig. 3, there is shown the left mandibular ramus of a

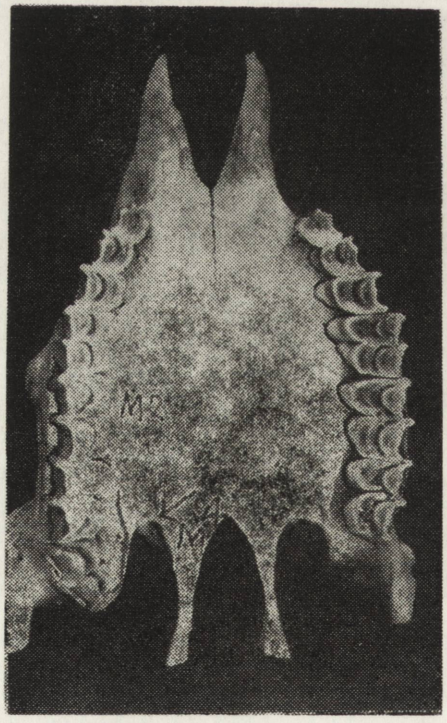

Fig. 2. Case B. Maxilla of sheep with a fourth molar on right side.

mature sheep. There is an unerupted incisor lying transversely, as seen more clearly in the radiographs. Although there is no obvious explanation of this anomaly, perhaps a blow to a deciduous incisor could have displaced the tooth germ of its successor. Frightened lambs do sometimes crash into fence wires, or strike rails at drenching. The one remaining incisor is well worn and the first premolar evidently was congenitally absent. This last feature is not rare.

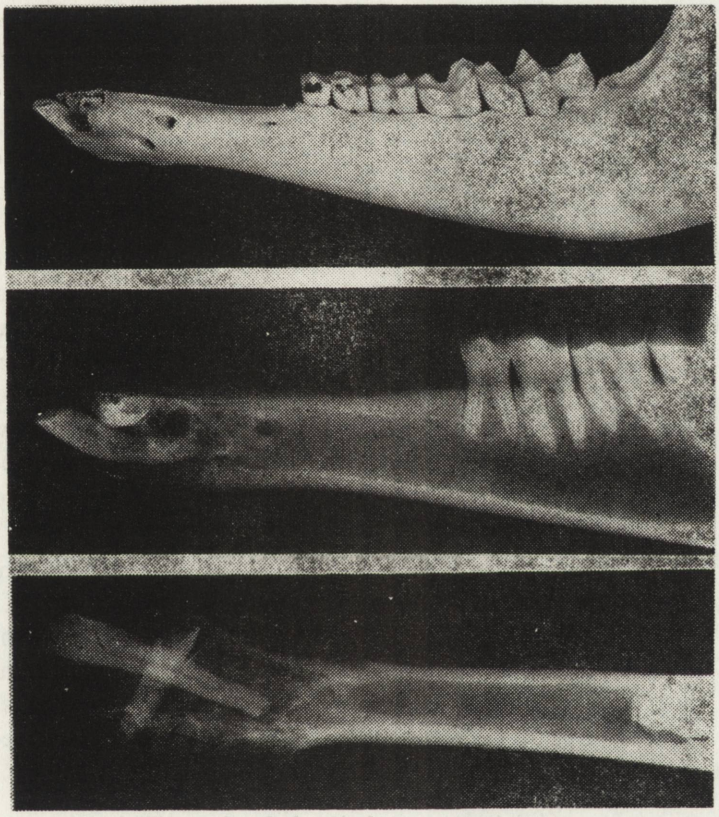

Fig. 3. Case C. Photograph (a) and radiographs (b,c) of the left ramus of the mandible of a mature sheep. One permanent incisor lies transversely and unerupted.

3. COMMENT

The suggested explanation of the displaced tooth in Case C is made by analogy with effects of trauma in children. It is common knowledge that young children frequently suffer injury to deciduous incisors, and dentists are familiar with treatment of such cases and their subsequent effects.

The effects vary widely and not only in respect to the severity, direction and nature of the injury. Important variables also are the age of the child and the stage of development of the dentition. While these are closely related, the physical relationship of deciduous tooth root and developing permanent tooth is constantly changing by resorption of the former and calcification of the latter, and by adjustments to the surrounding bone and other tissues.

There must be a time when root resorption is at an early stage and

the root is in close relation to the crypt of the developing permanent crown. During this period a blow to the deciduous tooth may displace (or turn) the tissue of crown or crypt. The permanent incisor continues to develop, as presumably happened in our Case C. In a child, a minor injury in somewhat comparable circumstances may permit tooth formation and eruption to proceed, but with resulting evidence of dilaceration in crown or root. (cf. Taylor, 1970).

Effects of such injuries to children may provide the answer to a problem which still seems to perplex dental anthropologists. This is the finding of teeth which are out of alignment in skeletal material, and is referred to as "tooth crowding". It is commonly reported merely as a count or percentage within an ethnic group, either as the number of individuals presenting crowding or as the number of teeth which are out of position. Where an explanation for the irregularity is offered, it tends to be regarded as an evolutionary trend whereby the size of jaws has been reduced in the human species.

I believe that more attention should be given to the form of the jaws and to the particular teeth which are out of position. In my own studies I have found that lateral incisors are most often involved and that this may occur in well developed jaws and broad dental arches. I believe that such cases may arise from trauma to deciduous incisors, and have presented evidence in support of this in my recently completed report on Australian Aboriginal material (Taylor, in press).

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