قسم : الجراحة ـ كلية الطب البيطرى ـ جامعة أسيوط.
رئيس القسم : محمد المصطفى منزلى.

الزوائد العظميه فى العظام المشطيه للقائمه الأماميه فى الحمير

نبيل مسك ، عبد الله حفنى

تم فحص ودراسة ٣٨ عظمه مشطيه صغرى مصابه بالزوائد العظمية فى الحمير، وقد دلت للنتائج على أن هذه الزوائد اكثر شيوعا فى العظمة المشطية الصغرى الانسيه.

كذلك تم تصنيف اربعة انواع من هذه الزوائد . وأمكن تشخيص معظمها باستخدام الاشعه السينيميه.

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THORACIC LIMB SPLINTS IN DONKEYS
(WITH 14 FIGURES)

BY
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(Received at 10/5/1981)

SUMMARY

38 small metacharpaly bones affected with splints in donkeys were subjected to full examination and description. The results indicate that splint most commonly involves the second metacarpal bone.

Four types; posterior metacarpal, intermetacarpal, deep metacarpal and knee splints were observed in donkeys. Of these, only one, the posterior metacarpal, is the most common type. All of these can be diagnosed radiologically except the deep metacarpal splint.

INTRODUCTION

The term splint in horses was variably defined by many authors (O'CONNER, 1950; HICKMAN, 1964, and ROONEY and PRICKETT, 1966). Splints are most commonly found on the medial aspect of the thoracic limb (ADAMS,1974) and usually occur in horses under five years old (FRANK, 1959).

Different types of splints in horses were described;simple splint-an exostosis at the usual seat of splint, knee splint-in which the exostosis involves the head of the splint bone or encroaches on the knee joint, rod or peg splint-an exostosis on either side of the cannon bone and connected by abnormal ridg, and chain splint-which consists of several small bony excrescences arranged in a row along the course of the splint bone (O'CONNER, 1950 and FRANK, 1959). Splints are also classified into, intermetacarpal-between the large and small metacarpal bones, posterior metacarpal - at the posterior border of the splint bone and deep metacarpal - at the posterior surface of the large metacarpal bone (SILBERSIEPE and BERGE, 1958).

The available literature lacks any information about the occurance of splints in donkeys.Along this study, the authors have intended to throw light on the most prevalent types of splints in donkeys with special emphasis on their incidence, position, size and shape.

MATERIAL AND METHODS

Two hundred donekys of different ages (5-17years old)and sexs,pur chased for use for student exercises in surgery, were examined clinically and radiologically for the presence of exostosis at the cannon region. 30 suspected animals were slected and sacrificed and the large and small metacarpal bones were prepared - 38 small metacarpal bones were collected having different types of bony exostosis and subjected to full examination and description concerning the position, size and shape of the splint. Radiographic examination was performed to detect the most suitable position for diagnosis of splints. Dorsopalmar, lateral and oblique views were taken for each bone.

RESULTS

Splints were observed in 29 MC II and in 9 MC IV. They were recorded in 21 animal at the MC II, in 8 animals at both MC II and MC IV and only in one animal at the MC IV.

Four Types Of Splints Were Recorded:

1- Posterior metacarpal splint:

This type of splint was found in 31 small MC bone out of 38 (in 15 cases alone, in 11 cases accompanied by inter-metacarpal splint and in 5 cases with deep metacarpal splint). The MC II was affected in 30 cases and the MC IV in one case only.

In most cases the middle third of the small MC bone was the predilection seat of bony exostosis while in rare cases it is present at its distal third. The bony exostosis was found on the free border of the small MC bone in 15 cases, on the free border and palmar surface in 3 cases and was present on the free border, palmar and dorsal surfaces in 2 cases. In 11 small MC bone the bony exostosis was observed on the free border, and dorsal surface as well as it encroaches over the dorsal surface of the large metacarsal bone. The latter was considered to be a posterior metacarpal and intermetacarpal splints together. The bony exostosis of the posterior metacarpal splint takes several forms (Fig. 1-6). The most suitable position for radiographic examination of the posterior metacarpal splint was the oblique view taking in consideration that the effected small metacarpal bone was present at a level posterior to the other healthy one (Fig. 7).

2- Intermetacrpal splint:

It was encountered in 15 MC II out of 38.The bony enalrgement was between the large and small MC bones and usually encroaches over them. 9 cases of intermetacarpal splint were observed at the level of the middle third of the small MC bone accompanied by posterior metacarpal splint (Fig. 8). In 2 cases only the splint was found at the level of distal third and accompained by posterior metacarpal splint. In 4 cases the splint was detected at the proximal third of the small MC bone with the deep metacarpal splint (Fig.9). The bony enalrgement varies in size from a small pea - like to a egg-size swelling encreaches over the dorsal surface of MC III. Dorso-palmar view was the only suitable position for radiographic examination of the inter-metacarpal splints (Fig. 10).

3- Knee splint:

In this type the bony exostosis involved the head of the small MC bone and encroaches over the palmar and dorsal surfaces of the MC III and distal row of the carpal bones. It takes the form of cauliflour appearance and encountered in 2 cases out of 38 (Fig. 11 + 12). Dorso-palmar and oblique views were the suitable positions for diagnosis of the knee splints (Fig. 13).

4- Deep metacarpal splint:

In this type, the bony exostosis was present at the palmar surface of the proximal extremity of the MC III at origin of the suspensory ligament. It appears as a rough area presented by many ridges and elevations varying in size and length (Fig. 14). Deep metacarpal splint was encountered in 5 MC III with posterior metacarpal splint and in 4 MC III accompanied by intermetacarpal splint. This type of splint was difficult to be diagnosed by x-ray.

DISCUSSION

The results of the present investigation concerning the varieties of splints were corresponding with that given by SILBERSIEPE and BERGE (1958). The most common type of splints encountered in donkeys was the posterior metacarpal splint. It was always present at the middle third of the second MC bone and usually in the form of elevated serrated ridge. The second type of splint which is more or less common in donkeys was the intermetacarpal splint. It was usually accompanied by posterior metacarpal or deep metacarpal splints. Deep metacarpal and knee splints were rarely observed in donkeys. Peg or rod splint stated by O'CONNER (1950) and HICKMAN (1964) in horses was not encountered in donkeys.

Splints usually affect the II MC bone and rarely affect the IV MC bone. The authors of the present work are in ageement with RONNEY and PRICKETT (1966) who stated that the localization of splints on the medial MC bone may be due to the greater compression load on the medial side of the limb together with the anatomical articular pattern of the MC II with the carpal bones. Also we considered that the sprain of the tendons of insertion of the extensor carpi obliquus and flexor carpi radialis muscles which are inserted at the medial metacarpal bone (GETTY, 1975) may be an additional cause for the prevalence of splint in this bone. Morover O'CONNER, (1950) stated that an exostosis developed at the inner aspect of the metacarpal bone below the knee may be caused by the horse striking the part by the other foot during progression as in "speed-cutting". Also sprain of the intermetacarpal osseous and suspensory ligaments may be an actual cause for intermetacarpal and deep splints respectively (O'CONNER, 1950 and ADAMS, 1974).

May authors describe splint as a condition affecting horses under five years old when they are first put to work (HICKMAN, 1964 and ADAMS, 1974). This fact cannot be insured in the present study because once the exostosis had been formed, recovery cannot occur and exostosis remains along the whole life of the animal. In the present work exostosis was recorded in donkeys aged 4 - 17 years old excluded from work due to many causes one of them was the splint. All types of splints could be diagnosed radiologically using dorsopalmar, lateral and oblique views except the deep metacharpal splint which cannot be easily diagnosed by using x - ray.

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FIGURES 1 - 14

Fig. 1: Posterior metacarpal splint. The bony exostosis looks like a prominant elevated ridge (length 5 cm, width at the base 2 cm & thickness 1 cm).

Fig. 2: Posterior metacrpal splint. The bony exostosis in the form of large elevated ridge (length 5 cm. width 1 cm and thickness 0.5 cm).

Fig. 3: Posterior splint. The bony exostosis in the form of two small excrescences.

Fig. 4: Posterior metacarpal splint. The bony exostosis takes the form of a chain of sharp elevated excrescences.

Fig. 5: Posterior and intermetacarpal splint. The bony exostosis affect the free border and dorsal surface of the second MC bone and encroaches over the dorsal surface of the large MC bone.

Fig. 6: Posterior and intermetacarpal splints. The bony exostosis is present along the whole length of the free border of the small M.C. bone and along the intermetacarpal space.

Fig. 7: Oblique x- ray film showing posterior metacarpal splint.

Fig. 8: Intermetacarpal and posterior metacarpal splint. The bony exostosis was found in two forms;pea-like. swelling between the large and small MC bone and serrated ridge at the free border of the small MC bone.

Fig. 9: Intermetacarpal splint. The bony exostosis is present between the small and large metacarpal bones.

Fig. 10: Dorso-palmar x-ray film showing intermetacarpal splint.

Fig. 11: Knee splint. Dorso-ventral view. The bony exostosis affect the head of the second MC bone and encroaches over the large MC bone and distal row of carpal bones.

Fig. 12: The same (lateral view).

Fig. 13: Dorso-plamar x-ray film showing knee splint.

Fig. 14: Deep metacarpal splint. It appears as a rough area presents many ridges and elevations at the posterior surface of the large MC bone. This condition is accompanied by intermetacarpal splint.

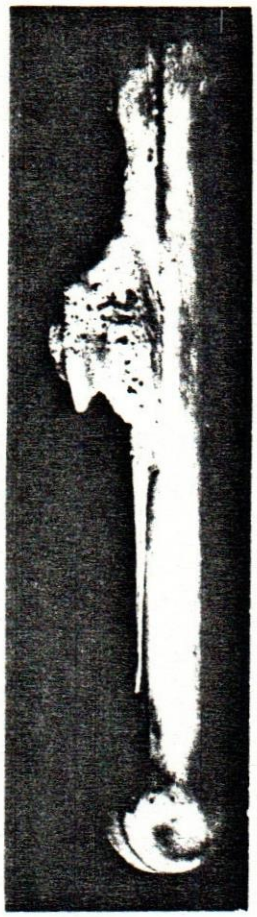
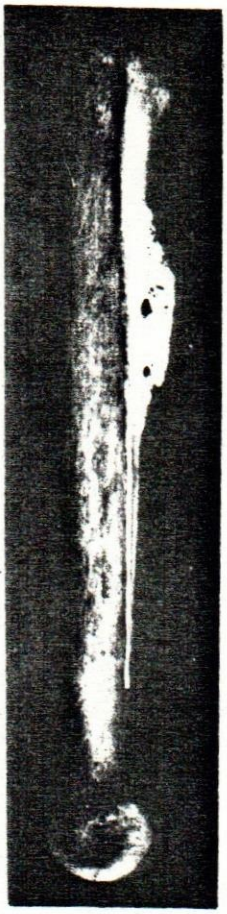


Fig. 1



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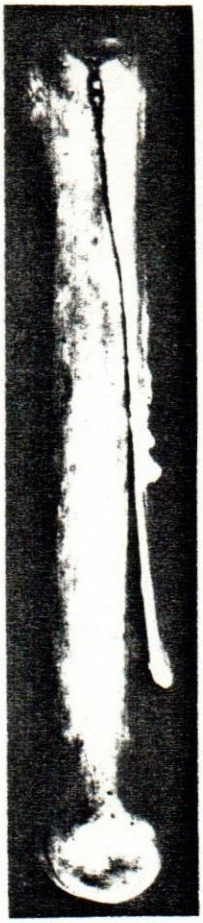

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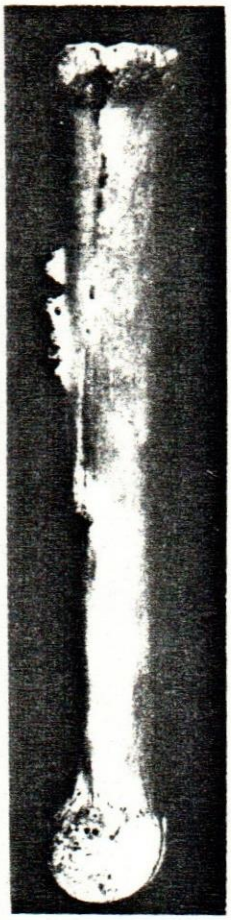

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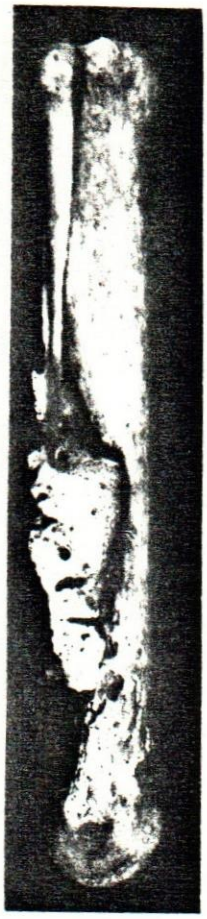

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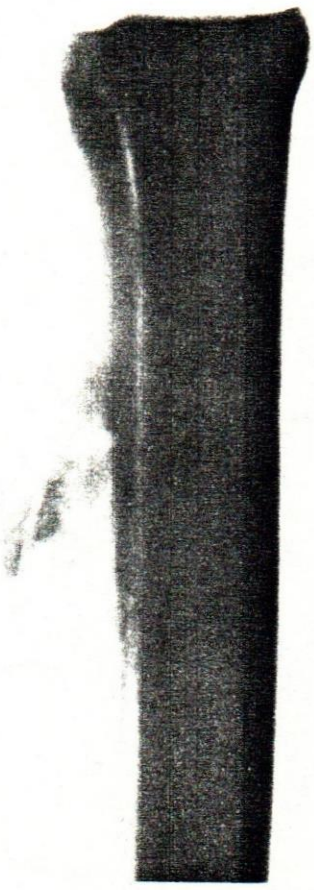
Fig. 6



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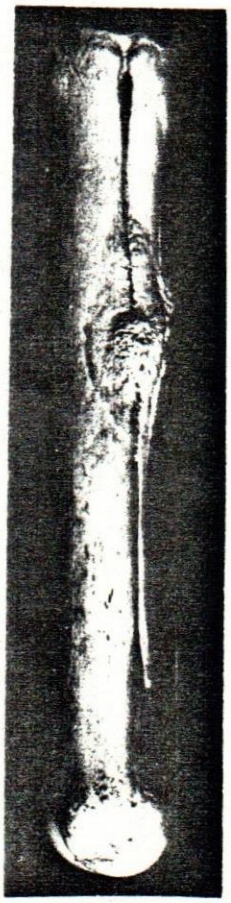

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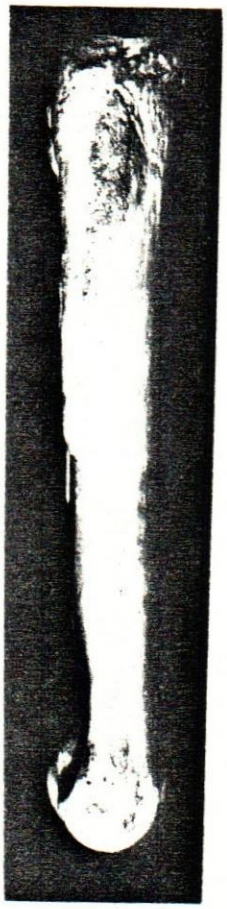

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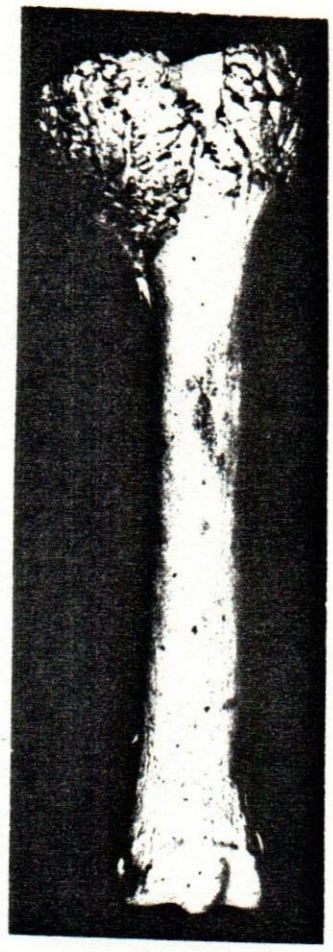
Fig. 10



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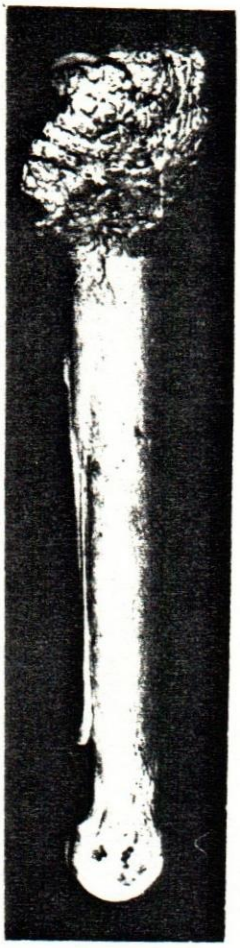

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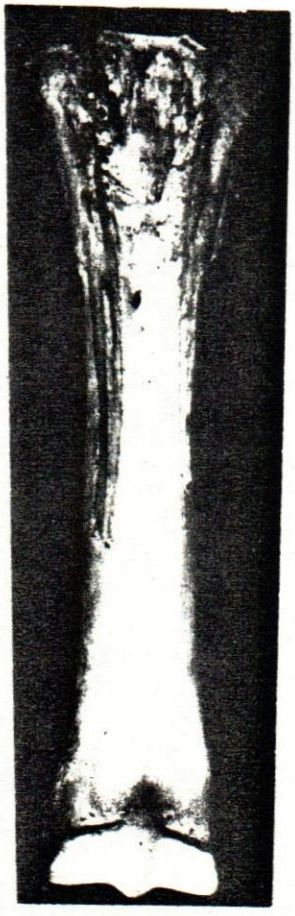
Fig. 13



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