

قسم : التشريح والهستولوجيا •  
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دراسات تشريحية راديولوجية على الأعماد الزلالية للعضلات الباسطة  
في القدم الأمامي للحمار

كمال الدين هاشم ، هارون يوسف ، محمد علم الدين ، علي عبدالقادر

أجري هذا البحث علي عدد ١٥ حمار وذلك لدراسة الأعماد الزلالية للعضلات الباسطة للقدم الأمامي في الحمار. وقد وجد أن العضلات الباسطة للقدم الأمامي تحتوي على عدد ٤ أعماد زلالية تقع كلها على الناحية الظهرية والجانبية لمنطقة الرسغ مما يجعلها أكثر عرضة للإصابة عند وقوع الحيوان على رسغه ، وقد تم دراسة كل غمد زلالي من حيث بدايته ونهايته وكذلك موقعه بالإضافة الي قياس طوله وعرضه وذلك بعد حقنه بمادة لاتكس الملونه • ونظرا للأهمية الاقتصادية للحمار في مصر لاستخدامه كحيوان ركوب وجرفان اصابة الأعماد الزلالية يعوق الحيوان من أداء وظيفته ولهذا تم اجراء الدراسات الراديولوجية على عدد ٣ حمير حية بحقن الأعماد الزلالية للعضلات الباسطة للقدم الأمامي في الحمار بمادة اليروجرافين ، وتم تحديد اسهل أماكن حقنها •

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**RADIOLOGICAL AND ANATOMICAL STUDIES ON THE TENDON SHEATHS  
OF THE EXTENSOR MUSCLES OF THE MANUS IN DONKEY**  
(With 4 Figures)

By  
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**SUMMARY**

In the present investigation, a certain anatomical studies on the tendon sheaths of the extensor muscles of the manus in the donkey were performed; including the beginning, termination, position, relation, and measurements of each tendon sheath. From the clinical point of view, the more accessible site for injection of each synovial sheath was determined, which is important in the diagnostic and therapeutic purposes. In general, the anatomical features of the tendon sheaths in donkey resemble those found in horse, however, the dissimilarity was also reported.

**INTRODUCTION**

As the morphology of the tendon sheath is of major importance for the anatomical and surgical fields, the present work was performed to give a full description about the morphology and the site of injection of the tendon sheaths of the extensor muscles of the manus in donkey. According to the statement of HALL (1971), SOMA (1971) and OEHME/PRIER (1974) the surgical anatomy of the tendon sheaths is inevitable not only for the operative interference but also for the appraisal of repair. Moreover, GREENOUGH/MacCOLLUM/WEAVER (1981) reported that the intrasynovial injection of tendon sheath is of great help for diagnostic purposes including microbiological, microscopical and radiological examination.

References about the tendon sheaths of the extensor muscles of the manus in donkey are meagre.

**MATERIAL and METHODS**

This study was carried out on 15 adult healthy donkeys of both sex from which three living animals were used to determine the site of injection and radiological studies using radio-paque substance (urographine). The remaining animals were thoroughly bled through the common carotid artery, four limbs of these animals were used for injection of the tendon sheath with gum milk latex and the remainder of the limbs were subjected to dissection in fresh state. The nomenclature used is that adopted by N.A.V. (1983).

**RESULTS**

The tendon sheaths of the extensor muscles of the manus in donkey are: Vag. tendinis M. abductoris digiti I longi (M. extensoris carpi obliqui), Vag. tendinis M. extensoris carpi radialis, Vag. tendinum M. extensoris digit. communis and Vag. tendinis M. extensoris digit. lateralis manus.

**Vag. tendinis M. extensoris carpi obliqui :**

The tendon of insertion of the M. extensor carpi obliquus is provided by a tendon sheath (1/1; 2/1) which begins 2.0 cm distal to the fleshy part of this muscle and 4.0 cm proximal to the carpus. The tendon sheath passes distomedially crossing the synovial sheath of the M. extensor carpi radialis where communication between the two synovial sheaths was not observed. Then it gains the medial groove on the cranial surface of the Trochlea radii. At the carpal region the sheath continues its course over the capsule of the carpal joint where it crosses the medial collateral ligament of this joint to terminate at the head of the second metacarpal bone. A synovial bursa is located between the tendon sheath of the M. extensor carpi obliquus and the medial collateral ligament of the carpal joint, however connection between the two synovial cavities was not recorded in the studied cases. The tendon sheath measures about 10.0 cm in length and 0.4 cm in width. The mesotendon is attached to the lateral border of the tendon of the M. extensor carpi obliquus.

To inject the tendon sheath of the M. extensor carpi obliquus, the tendon is palpated at a level 1.5 cm proximal to the ridge lying between the middle and the lateral grooves at the cranial surface of the distal extremity of the radius, and the needle is introduced distomedially for about 1.5 cm.

**Vag. tendinis M. extensoris carpi radialis :**

The synovial sheath of the M. extensor carpi radialis (1/2; 2/2) begins 1.8 cm distal to the fleshy belly of this muscle and 7 cm proximal to the carpus. It passes downward in the middle groove on the cranial aspect of the Trochlea radii under the tendon sheath of M. extensor carpi obliquus. At the carpal region the sheath continues distally between the extensor retinaculum and the capsule of the carpal joint medial to the tendon sheath of the M. extensor digiti communis to end at the palpable intercarpal joint where it comes in contact with the Bursa subtendinea M. extensoris carpi radialis. The communication between these synovial cavities was not demonstrated. In 3 cases the tendon sheath was found to extend 0.5 cm distal to the before-mentioned joint. The synovial sheath measures 10.5 cm in length, while its width is about 1.1 cm at its beginning, 1.4 cm at the level of the accessory carpal bone and 1.6 cm at its termination. The mesotendon is attached to the dorsal aspect of the tendon of M. extensor carpi radialis.

To inject the tendon sheath of the M. extensor carpi radialis, the bony prominence lying between the middle and lateral grooves at the cranial aspect of the Trochlea radii must be palpated. Proximal to this bony prominence by about 3.5 cm, the tendon of the M. extensor carpi radialis can be palpated and the needle is introduced distolaterally for about 2.5 cm.

**Vag. tendinum M. extensoris digiti communis :**

The tendon sheath of the M. extensor digitorum communis (3/1) begins 2.5 cm distal to the fleshy belly of the muscle and 8.2 cm proximal to the carpus. It runs distally through the lateral groove of the cranial aspect of the Trochlea radii, then continues its course distally over the capsule of the carpal joint opposite to the intermediate, third and fourth carpal bones to terminate 0.6 cm distal to the proximal extremity of the large metacarpal bone. It measures 11.7 cm in length, while its width being 0.6 cm at its beginning, 0.8 cm at the level of accessory carpal bone and 1.4 cm at its termination. These measurements reveal that the terminal part has a double width of the proximal part and this explains the presence of dilatation at the terminal part of the tendon sheath during injection. The mesotendon is attached to the dorsal aspect of the tendon of the M. extensor digitorum communis.

## TENDON SHEATHS OF THE MANUS IN DONKEY

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## LEGEND OF FIGURES

**Fig. (1): Tendon sheaths of M. extensor carpi obliquus and M. extensor carpi radialis.**

- A) Dorsopalmar radiograph.                      B) Radiographic sketch of A.
- 1- Vagina tendinis M. extensoris carpi obliqui.  
2- Vagina tendinis M. extensoris carpi radialis.
- a. Radius.    b. Os carpi radiale.    c. Os carpale III.  
d. Os metacarpale II.                      e. Os metacarpale III.

**Fig. (2): Tendon sheaths of M. extensor carpi obliquus and M. extensor carpi radialis.**

- A) Mediolateral radiograph.                      B) Radiographic sketch of A.
- 1- Vagina tendinis M. extensoris carpi obliqui.  
2- Vagina tendinis M. extensoris carpi radialis.
- a. Radius.    b. Os carpi accessorium.    c. Os carpale III.  
d. Os metacarpale II.                      e. Os metacarpale III.

**Fig. (3): Tendon sheath of M. extensor digitorum communis.**

- A) Oblique lateropalmar radiograph.                      B) Radiographic sketch of A.
- 1- Vagina tendinis M. extensoris digit. communis.
- a. Radius.    b- Os carpi accessorium.    c. Os metacarpale III.  
d. Os metacarpale IV.

**Fig. (4): Tendon sheath of M. extensor digitorum lateralis.**

- A) Oblique lateropalmar radiograph.                      B) Radiographic sketch of A.
- 1- Vagina tendinis M. extensoris digit. Lateralis.
- a. Radius.    b. Os carpi ulnare.    c. Os metacarpale III.  
d. Os metacarpale III.                      f. Os metacarpale IV.

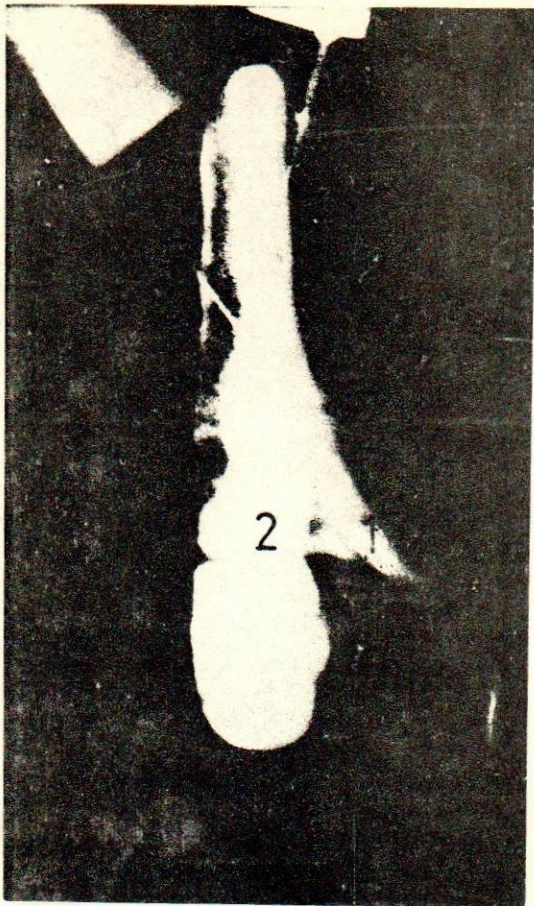


Fig. 1 (A)

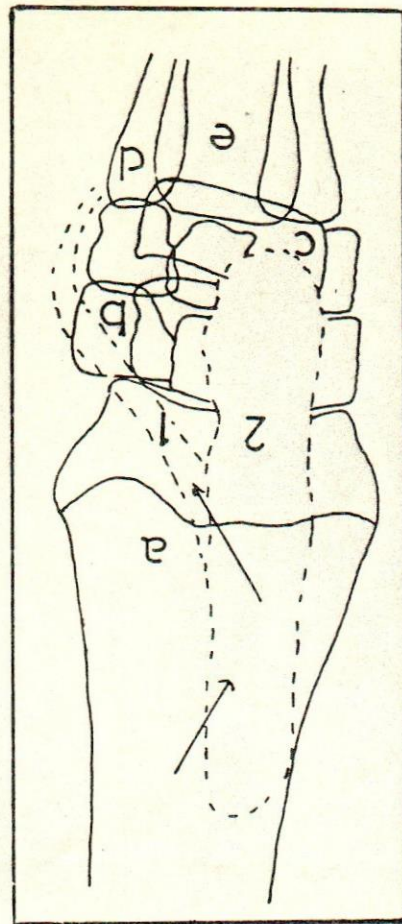


Fig. 1 (B)

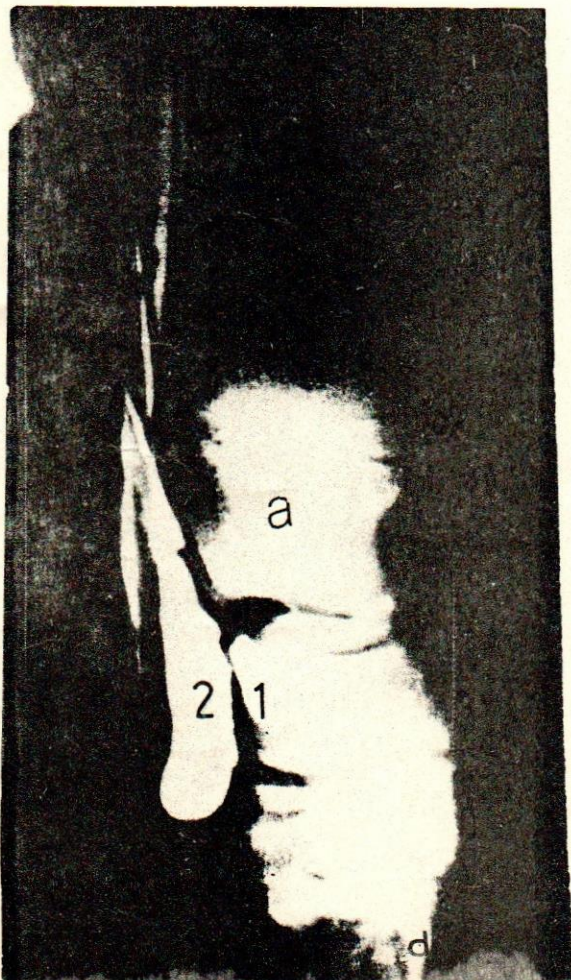


Fig. 2 (A)

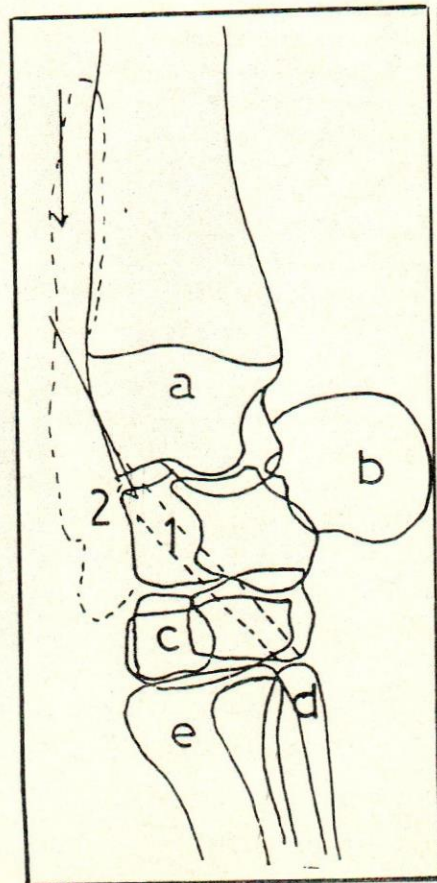
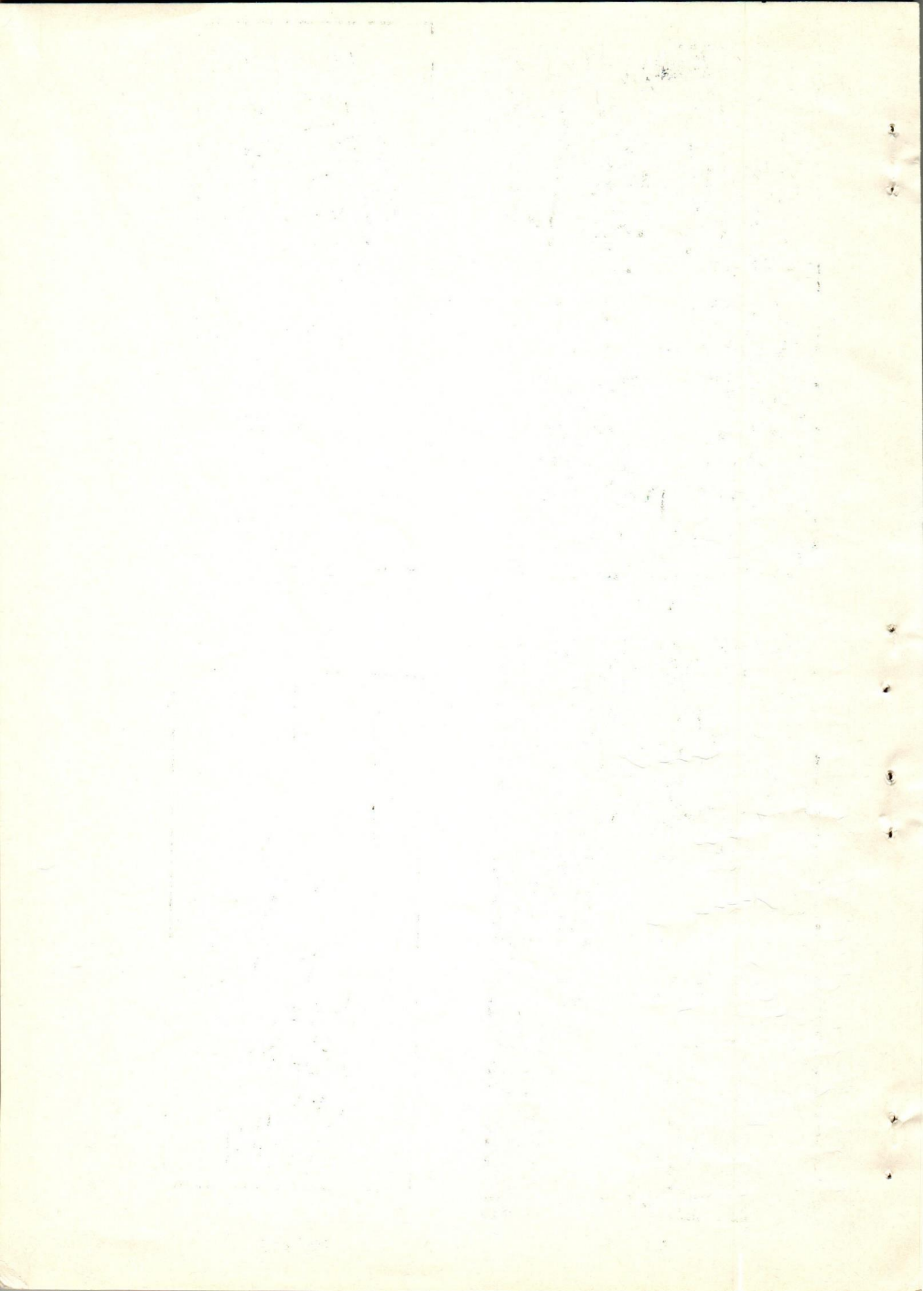


Fig. 2 (B)



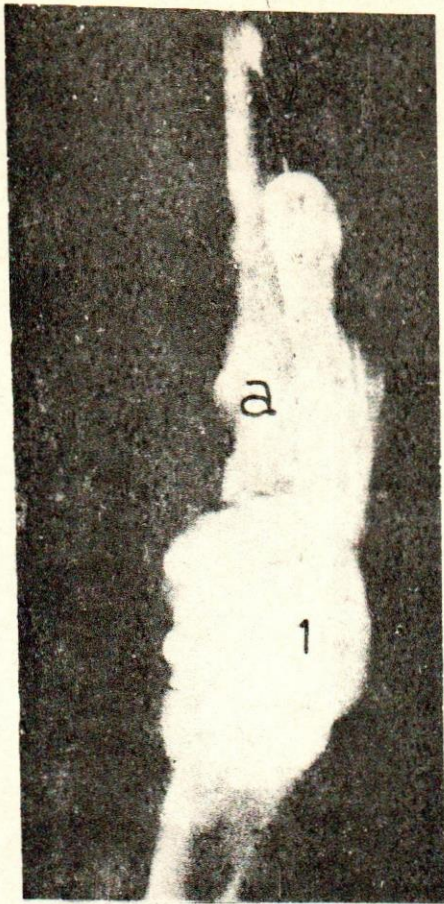


Fig. 3 (A)

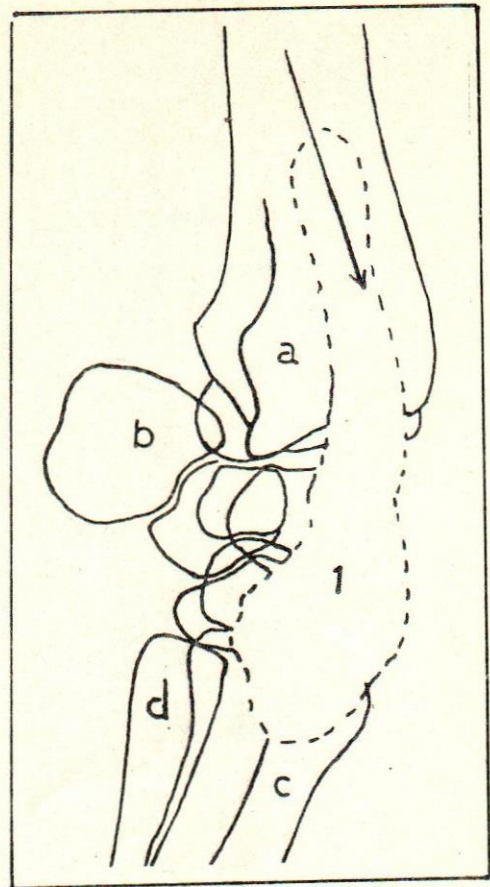


Fig. 3 (B)



Fig. 4 (A)

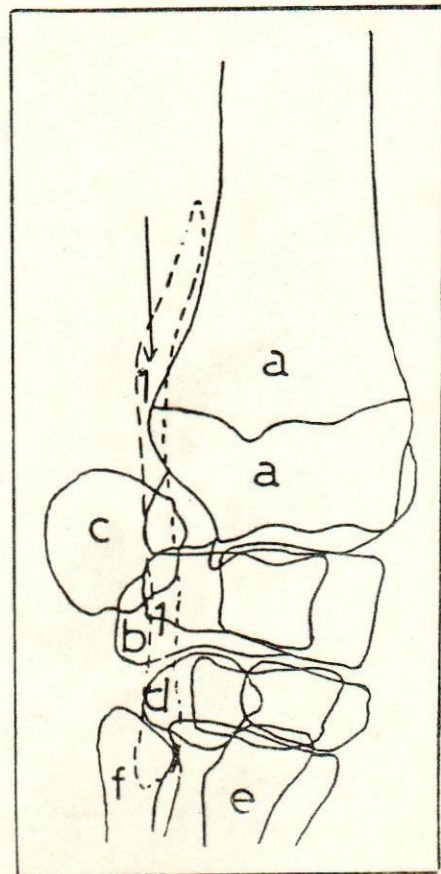


Fig. 4 (B)

