

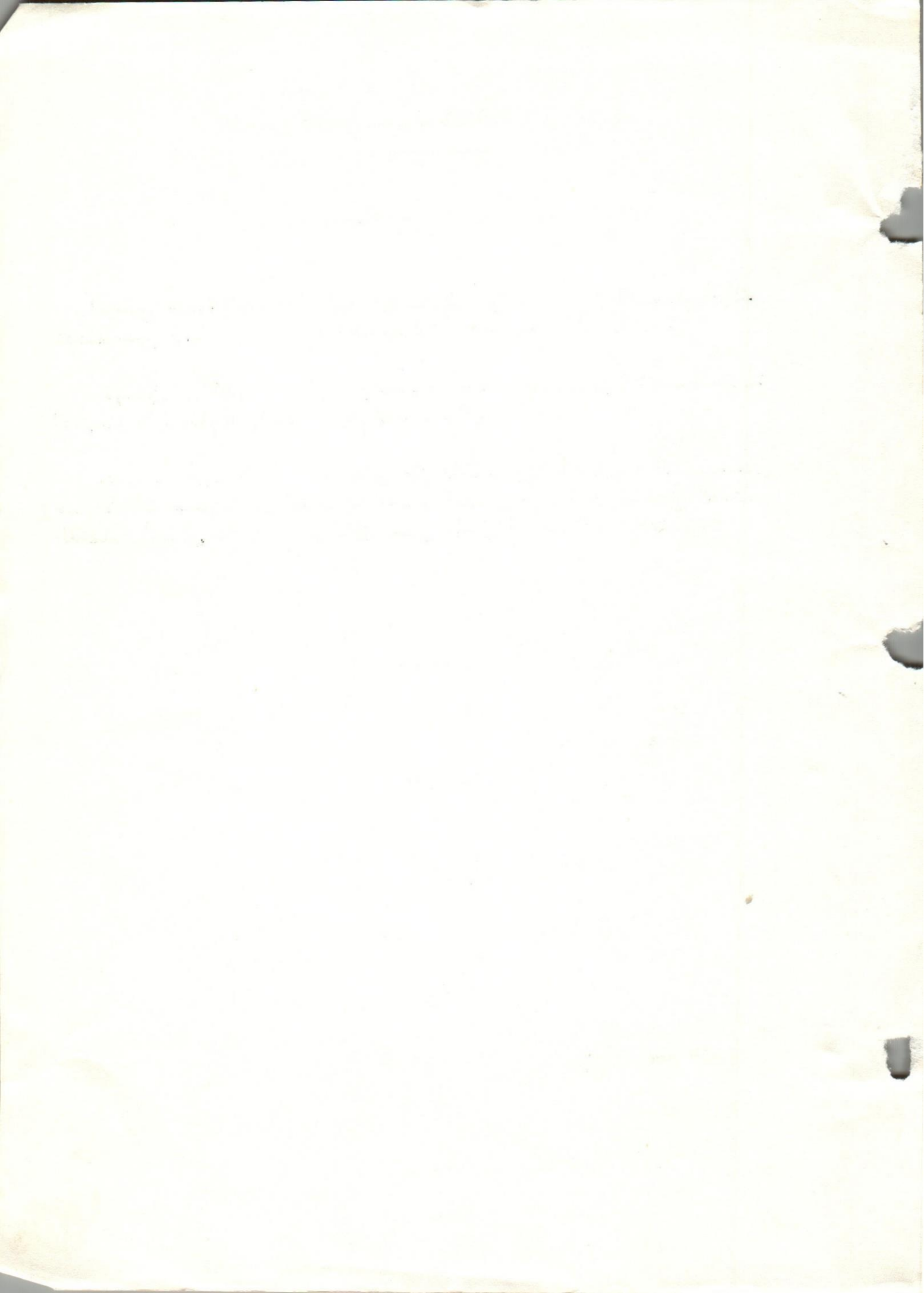
التشريح الجراحي لعظمة الفخذ في الكلاب

ن . مسك ، ع . حفنى

لتوضيح عظمة الفخذ في الكلاب يفضل الوصول اليها من السطح الوحشى
للفخذ بين عضلاتى الوسيعة الوحشية وذات الراسين الفخذية .

وللوصول الى الجز السفلى من عظمة الفخذ يفضل من الناحية
الانثوية أمام وتر اندغام العضلة المشطية .

وتظهر اهمية هذا البحث في حالات الكسور في الكلاب ، ففى
حالات كسور جسم العظمة يفضل الوصول اليها من السطح الوحشى
للفخذ . أما في حالات الكسور فوق القمى يفضل السطح الانسى للفخذ .



Department of Surgery, Faculty of Vet. Med.
Assiut University.
Head of Dept. Prof. Dr. M.H. El-Guindy.

" SURGICAL EXPOSURE OF THE FEMUR IN THE DOG "
(With two figures)

By

MISK, N.A. and HIFNY, A.

(Received at 20/4/1977)

SUMMARY

Surgical exposure of the femur in dogs was studied from the lateral and medial aspects of the thigh.

The preferable approach for surgical exposure of the femur is from the lateral aspect of the thigh along its whole length between the biceps femoris and vastus lateralis.

From the medial aspect of the thigh exposure of the femur at its distal half between the tendon of pectineus muscle and vastus medialis is easier than that at the proximal half between the fleshy part of the pectineus muscle and the adductor muscle.

In cases of simple shaft fracture the lateral exposure of the femur is indicated but in cases of supracendyloid fracture the distal medial exposure is recommended.

INTRODUCTION

Fracture of the femur is common in dogs. The simple type of fracture of the femur is more common than other types.

Surgical exposure of the femur for extra or intra-medullary fixation is of importance for treatment of this type of fracture.

Exposure of the femur from the lateral aspect of the thigh by an incision between the vastus lateralis and biceps femoris muscles was done by PIERMATTEI, & GREELEY, (1967); BROWN, (1972); RICHARD, & MAHESVARAN, (1973); HORN, (1973); and MASTIS, & KOSTLIN, (1974).

Assiut Vet. Med. J. Vol. 4, No 8, 1977.

The aim of this work is to evaluate different approaches for surgical exposure of the femur in cases of simple fractures.

MATERIAL AND METHODS

The anatomical exposure of the femur in dogs was studied in formalized specimens. In addition to the study of the course of the blood vessels and nerves; the origin, insertion and relations of the muscles of the thigh region with special reference to the femur were described.

Ten alive dogs were subjected to experimental surgical exposure of the femur at different levels in the thigh from the lateral and medial aspects.

RESULTS AND DISCUSSION

a - Anatomy of the thigh region

The superficial muscles of the thigh are covered by superficial and deep fascia. The superficial fascia has no exceptional features but the deep one is very thick and strong on the cranial and lateral surfaces. This part, the fascia lata, is tendinous in character and easily separable from the underlying muscles.

The deep fascia of the thigh furnishes some intermuscular septa. One of them passes between the vastus lateralis and biceps femoris to be attached to the lateral rough line of the facies aspera.

The quadriceps femoris covers the shaft of the femur except its caudal surface. It consists of rectus femoris (cranial) vastus lateralis (lateral), vastus medialis (medial), and the vastus intermedius which is situated directly

SURGICAL EXPOSURE OF THE FEMUR

- 5 -

medial to the rectus femoris and covering the cranial surface of the femur. All except the rectus femoris arise from the proximal part of the body of the femur. The rectus femoris arises from a tuberosity just cranial to the acetabulum.

The quadriceps femoris inserts by a tendon containing the patella, in the tibial tuberosity.

The biceps femoris is the largest and the most lateral of the caudal muscles of the thigh. It lies caudal to the vastus lateralis from which it is separated by intermuscular septum.

The adductors are a strong group of muscles on the medial side of the thigh. They are arranged in superficial and deep layers. The superficial group includes the Mm. sartorius and gracialis. The deep group is represented by the Mm. pectineus, adductor and obturator externus. Between the M. sartorius and the M. gracilis there is a broad gap. In its depth the mm. adductor and pectineus can be seen caudally, the rectus femoris and vastus medialis cranially.

The pectineus is closely applied to the m. adductor magnus et brevis cranially. Distally the muscle becomes flatter after it has passed under the sartorius. It descends in the thigh in a groove between the vastus medialis and adductor to form a tendinous attachment along the caudal surface of the femur distal to its middle. The medial border of the tendon ends on the raised ridge of the medial femoral condyle in common with the cranial belly of the m. semimembranosus. The thinner principal portion of the tendon goes into the periosteum on the popliteal surface of the femur medial to the insertion of the adductor magnus et brevis. The m. adductor,

longus inserts on the lateral rough line of the facies aspera distal to the facies third trochanter, whereas the m. adductor magnus et brevis inserts on the whole lateral rough line from the third trochanter to the popliteal surface.

b - Surgical exposure of the femur

The favourable approach for exposing the femur in dogs along its whole length is the lateral aspect of the thigh between the biceps femoris and vastus lateralis.

The groove between the biceps femoris and vastus lateralis can be detected subcutaneously in living animals or can be determined by drawing an imaginary line connecting the trochanter major of the proximal extremity and the trochlea of the distal extremity of the femur.

An incision on the imaginary line through the skin and superficial fascia of the thigh and then through the deep fascia (fascia lata) leads to the intermuscular space between the biceps femoris and vastus lateralis. Blunt dissection between the intermuscular septum and the vastus lateralis muscle will expose the lateral surface of the femur along its whole length without cutting the attachment of this septum in the lateral lip of linea aspera (Fig. 1).

As the quadriceps femoris is attached only to the proximal part of the femur, exposure of lateral surface of the femur leads easily to exposure of the cranial and medial surfaces.

Exposure of the femur from the medial aspect is found to be difficult in the upper half of the thigh.

An incision between the caudal border of the fleshy part of the pectineus muscle which can be detected subcutaneously in the living animal and the adductor muscle will ex-

SURGICAL EXPOSURE OF THE FEMUR

- 7 -

pose the upper half of the femur. The incision is made through the skin, superficial and deep fascia at the medial aspect of the thigh.

Exposure of the upper part of the femur by this way does not provide a sufficiently large field for surgical operation and the surrounding muscles, blood vessels and nerves are prone to be injured.

The distal half of the femur can be exposed from the medial aspect of the thigh by an incision just cranial to the palpable pectineal tendon of insertion between the two parts of sartorius muscle.

The incision is made through the skin, superficial and deep fascia of the thigh. A blunt dissection through the aponeurosis lying between the two parts of the sartorius muscle and then between the tendons of pectineus muscle and vastus medialis will expose the distal half of the femur (Fig. 2). This way of exposure is satisfactory to expose the distal half of the femur for treatment of supracondyloid fracture without interference with the surrounding blood vessels and nerves.

REFERENCES

- Brown B.C. (1972): Femoral neck fracture in a dog. Journal of the American veterinary Medical Association 161 No. 7 800- 802.
- Horn, R.B. (1973): Plate fixation comminuted femoral shaft fractures in the dog. Journal of the American veterinary Medical Association 162 No. 8, 646 - 647.
- Mastis, U., Kostlin, R. (1974): Zur Druckosteosynthes distaler epiphysenlosungen bzw. suprakondylarer frakturen des femur bei hund und katze. Berliner und Munchener Tiararztliche Wochenschrift. 87, Heft. 10. 198 - 200.
- Piermattei, D. L. and Greeley R.G. (1967): An Atlas of surgical Approach to the Bones of the dog and Cat. W. B. Saunders Company, Philadelphia, 86 - 87.
- Richard M. G. and Mahesvaran, V. U. (1973): Studies on the osteosynthesis of long bones in canines and felines with intramedullary pins. Indian veterinary Journal 50, No. 10. 1038 - 1045.

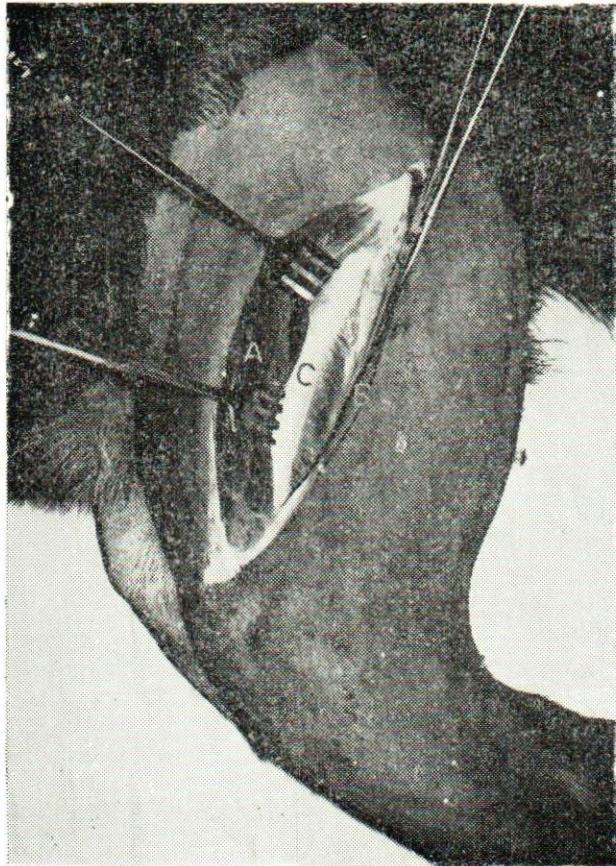
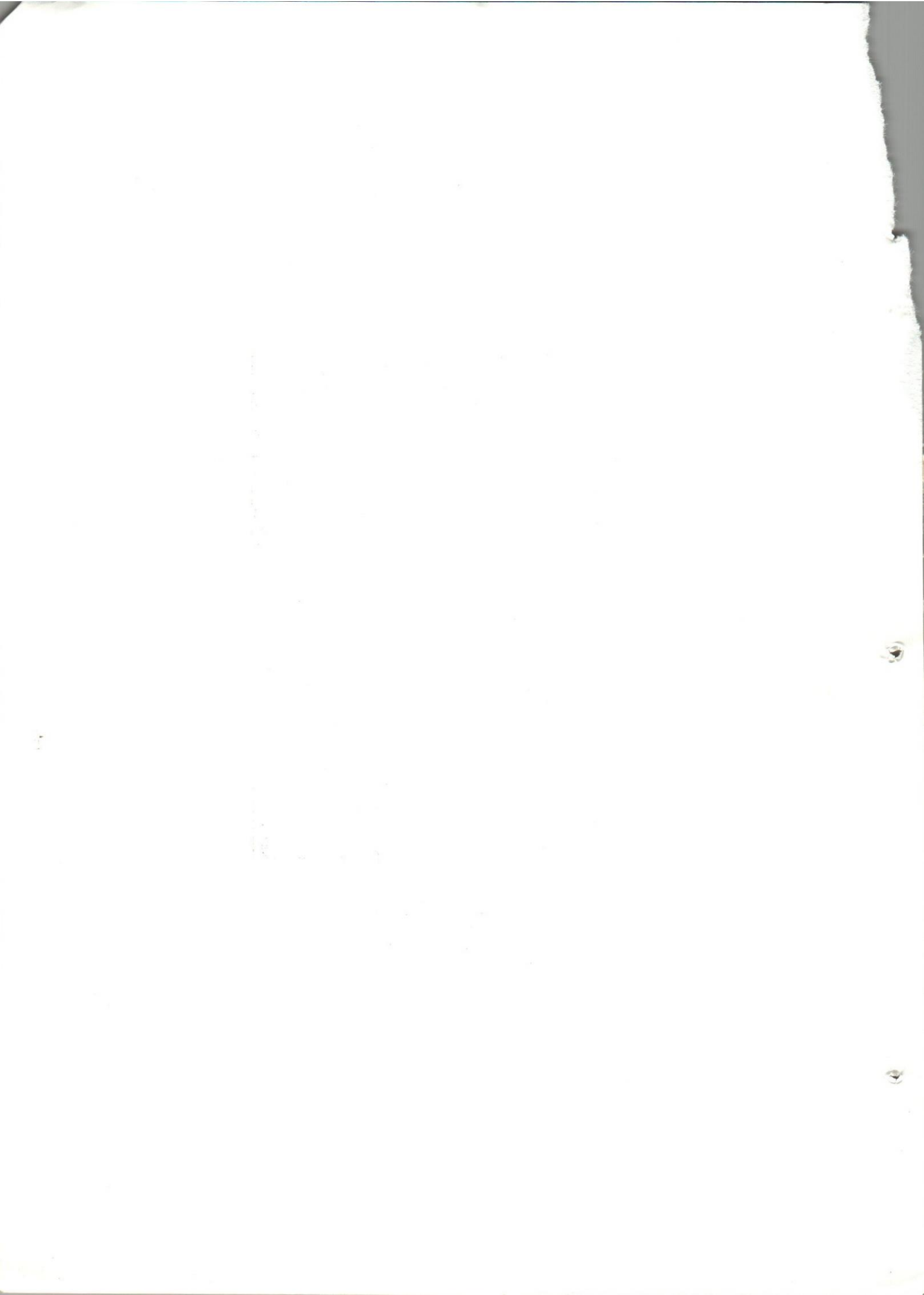


Fig. 1

- A. Vastus lateralis
- B. Biceps femoris
- C. Femur.



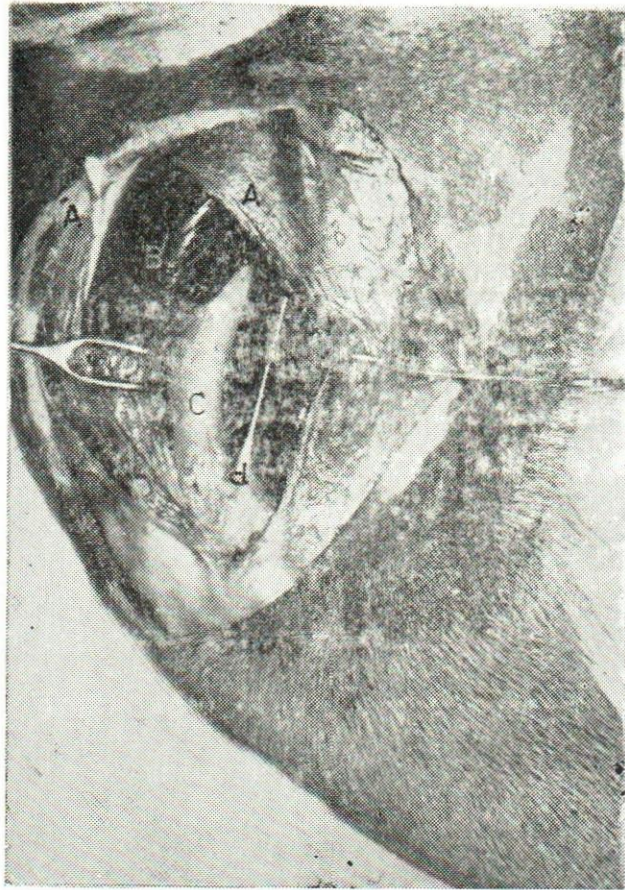


Fig. 2

- A. Sartorius
- B. Vastus medialis
- C. Femur.
- D. Pectineal tendon.



Fig. 2

- A. Entrance
- B. Vestibule
- C. Hallway
- D. Main Room