

HEMANGIOMA OF THE KNEE JOINT

By

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Knee joint hemangioma may be the cause of pain lasting many years for which the correct diagnosis cannot be determined—often because the presence of synovial hemangioma is not brought into consideration.

Exploratory surgery is usually necessary for the diagnosis. Among the relatively few cases in the literature, the correct preoperative diagnosis was only established in exceptional cases. During the period 1948 to 1961 three cases were treated at the Norrbacka Institute and reports of these are given below.

Case No. 1.

6740/53: A woman aged 22 with an extremely tender site, since the age of 12, 2 cms. medial of the left patella with pronounced palpatory tenderness and hyperesthesia. She has had intermittent aching and slight swelling of 3 cms. in extent above the area of tenderness. The patient took part in physical exercise in school without restriction. Relief was given by applying a firm elastic bandage over the knee. There was no limitation of movement or painful movement in the knee joint. No locking.

Status: General condition normal.

Local status: A small, button-shaped protrusion could be palpated on the medial side just above the joint of the left knee, very tender, on a level with the proximal edge of the capsule fold. The range of motion was normal. There was no difference in length of bone.

Preoperatively a glomus tumour or meniscus ganglion was suspected. Radiographic findings were negative.

Operation: Extra-articular nothing was found but a certain swelling of the capsule. This was opened and a bluish-black, pocket-like formation, the size of a bean, was encountered proceeding from the capsule. This formation with the surrounding part of the synovial membrane was extirpated.

Histology: In sectioning, fibrous tissue was seen in which lay a fairly well defined cavernous hemangiomatous tumour. No glomus elements could be observed. No basis for malignity or specific inflammation. Cavernous hemangioma.

Postoperatively there were no complications. After 7 years' observation there were still no symptoms.

Case No. 2.

1894/48: A woman aged 34 with intermittent aching, localized to the lateral side of the right patella for the last three years. When bending the knee or after rising to her feet she experienced pain and she had difficulty climbing stairs. She could not kneel down. There was no locking. It was not possible to ascertain trauma from the anamnesis. Physiotherapy, plaster-immobilization and radiotherapy had no effect.

Status: General condition normal.

Local status: Slight, diffuse swelling of the right knee, with contour maintained. No exudate. There was muscle atrophy of the right thigh, 1 cm. in extent, 15 cms. proximally from the base of the patella. Palpable capsule thickening and intense tenderness were found above the lateral femoral condyle. There was no tenderness above the medial or lateral meniscus and ligaments. The patella could be displaced laterally, somewhat less to the right side than to the left.

Preoperatively: Radiography and knee arthrography were negative, so that exploratory surgery was carried out.

Operation: An incision was made lateral to the patella. In the fibrous capsule immediately adjacent to the patella a limited area of change was found, 3-4 mms. deep and with a diameter of 1×1 cm. well-vascularized and edematous. An oval excision of the whole area was performed, but the joint itself was not entered.

Histology: Loose connective tissue with rich vascularization. Veins with obliterated lumen owing to a pronounced edematous intima. Close by there were well-defined clusters of cavernous, blood-filled vessels with thin walls. A thin layer of connective tissue formed a capsule-like line of demarcation. Spread around these formations and other parts of the tissue numerous minor vessels were found, generally contracted with small lumina and partly conditioned by irregular proliferation of intima. Here and there surrounding the vessels there was an abundance of lymphocytes and plasma cells. Certain of the vessels were rich in nuclei and the cells had an epithelioid appearance and were directly joined to shrunken capillary angiomatous parts surrounded by scanty smooth musculature. There was no basis for malignant tumour or specific inflammation. There was mainly cavernous hemangiomatous formation.

Postoperatively: No complications. No symptoms.

Case No. 3.

1732/61: A girl aged 13 with a 6 year anamnesis of intermittent aching above the right knee persisting the whole 24 hours and increasing after exertion. The patient declared that the trouble probably commenced in connection with a severe blow to the right knee at the age of 6. Now and again she experienced swelling above the right knee and noticed that there was sometimes a click in the knee. She had never had any locking. The mother occasionally observed a slight limp. The patient had been examined by a number of doctors over recent years. Repeated X-ray examinations had been negative and the disease remained undiagnosed.

Status: General condition normal. Asthenic build.

Local status: No obvious limp. Considerable quadriceps atrophy existed in the right leg equal to 4.5 cms., at a distance of 12 cms., above the base of the patella. The range of movement in the knee joint was 180-50 degrees. Distinct and

intense palpatory tenderness was present in an area 2×2 cms. in size and 3 cms. proximal and medial from the base of the patella. No hydrops, No instability. The right leg was 1 cm. shorter than the left, measured from the anterior superior iliac spine to the upper margin of the medial malleolus. Reflexes and sensibility were normal. Skin colour was average. The knee X-ray showed a normal picture.

Preoperatively a glomus tumour or chondromalacia of the patella with chronic bursitis was suspected. After applying a knee plaster for two weeks there was no change and an arthrotomy was decided.

Operation: A well defined capsular hemangioma the size of a plum was extirpated; it proceeded from the proximal synovial membrane upwards against the vastus medialis muscle.

Histology: In the section fatty and connective tissue groups of dilated vessels were seen with very thin fibrous walls. The architecture of the vessels was cavernous. There was no basis for malignancy. The preparation was considered to be an angiomatous formation with cavernous structures.

Postoperatively: At the check-up after 4 months the girl was free from pain, without palpation tenderness and possessed good mobility, 180–60 degrees. A quadriceps atrophy of 2.5 cms. was present, 15 cms. above the base of the patella. The patient who was previously nervous and complaining is now, according to the father, happy and lively.

DISCUSSION

The 3 related cases all had intermittent aching and swelling, palpatory capsular thickening, and distinct palpatory tenderness. Quadriceps atrophy was measured in 2 patients. Two of the cases experienced the first trouble at the early ages of 6 and 12 years. They all had a long case history, 3, 6, and 10 years before the correct diagnosis was made. Knee radiography showed normal conditions.

When studying earlier cases reported in the literature, the above details were found to be typical of a knee joint hemangioma. Trouble was experienced at an early age (3, 4, 6, 8, 9, 12, 16, 19, 27, 36) and usually the patients had suffered for several years before the correct diagnosis could be made (1, 3, 4, 9, 12, 16, 17, 19, 21, 27). *Weaver* (1938) emphasizes that no benign tumour, with the exception of the glomus tumour, causes aching as often as hemangioma. The quadriceps atrophy (4, 9, 17, 19, 21, 31) was seen to be a normal clinical finding. A palpable tumour occurred in about half of the cases and then was often diffusely palpable. A markedly palpable tumour diminishes on elevation of the leg. Bone length disturbances were observed by some authors, with increased growth in length in two out of nine cases (19). The occurrence of increased bone length in hemangioma is stressed by *Weaver*. Extremely few cases of knee joint hemangioma were correctly diagnosed preoperatively. Preoperatively a number of diagnoses were made such

as chronic bursitis, glomus tumour, chondromalacia patellae, growing pains, loose body, tbc, hemarthrosis, gc-arthritis, lues and meniscus injury.

Radiography did not give any guide to the diagnosis. Puncture of the tumour with the exchange of blood and diminished swelling on elevation may result in some guidance (11, 21, 31). Angiography may be a valuable measure in obtaining a preoperatively diagnosis (2, 17), but is sometimes negative owing to thrombosis, preventing suitable contrast filling (6, 15).

The etiology is unknown. The majority of authors accept the theory of a congenital anomaly, where the symptoms often begin in connection with trauma (3, 4, 6, 16, 17, 21, 31).

Therapy depends on the spread of the hemangioma. With stalk hemangioma the result is good when the tumour is excised. With diffusely spread hemangioma *Bennet & Cobey* recommended X-ray therapy without any attempt at excision.

SUMMARY

Three cases of hemangioma of the knee joint are reported. Intermittent pain and palpable tenderness were the main symptoms together with atrophy of the quadriceps muscles and local swelling.

Surgical exploration determined the diagnosis, and the excision of the pedunculated tumour afforded complete relief.

RESUME

Trois cas d'hémangiome de l'articulation du genou sont rapportés. Les principaux symptômes cliniques étaient des douleurs intermittentes, l'enflure, l'atrophie des muscles quadriceps et une sensibilité douloureuse palpable.

L'exploration chirurgicale établit le diagnostic et l'excision de la tumeur pédonculée assura un complet soulagement au malade.

ZUSAMMENFASSUNG

Drei Fälle von Haemangiome des Kniegelenkes werden berichtet. Die klinischen Hauptsymptome waren intermittierende Schmerzen und Schwellung, Atrophie des m.quadriceps und Druckempfindlichkeit.

Die chirurgische Freilegung gab die Diagnose und die Entfernung des gestielten Tumors brachte vollständige Heilung.

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