Acta Orthop Scand *56*, 342–343, 1985

A case of blackthorn synovitis

A seven-year-old boy fell against a blackthorn bush and found that thorns had penetrated the skin over the left knee. Aseptic synovitis developed with repeated febrile episodes. With the suspicion of septic arthritis, the patient was treated with antibiotics on repeated occasions, two negative joint aspirations and a knee joint exploration were performed. Three months after the injury the correct diagnosis was made at a second arthrotomy when an intra-articular thorn was removed and synovectomy carried out, after which healing was uneventful.

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Various manifestations of the thorn of the sloe or blackthorn (*Prunus spinosa*, Figure 1) penetrating the skin have been reported from Great Britain (Kelly 1966), including six cases of synovitis. Blackthorn synovitis is rare, and to the authors' knowledge no previous case has been described from the Scandinavian countries.

Case report

A seven-year-old boy fell against a blackthorn bush and noted that two thorns had penetrated the skin over his left knee. Both were immediately removed, but the boy said that some thorn remnants were still left in his knee. Later the same day, the patient sought medical attention because of increasing pain in his knee, and was prescribed penicillin for 6 days.

Ten days after the injury, 12 ml of exudate was aspirated from the joint, bacteriological cultures were negative, and a second course of penicillin was prescribed. No rheumatoid factor was found in the serum.

At 6 weeks, the boy was febrile (38°) and the joint swollen. Arthotomy was performed as septic arthritis was suspected. An intense synovitis was found, bacteriological cultures were again negative and i.v. cephalosporin theraphy was instituted. After a short period of improvement, the boy was again febrile 1 month later with knee pain and effusion. In one culture from aspiration, growth of *Enterobacter agglomerans* was noted, most likely a contamination. Fucidinic acid was now added to the therapy and the symptoms subsided somewhat temporarily, but 3 months after the injury the boy once again presented with fever, knee pain and effusion. ESR was 80 mm, scintimetry using Tc-MDP showed an increased uptake, more pronounced in the vascular than in the metabolic phase.

The boy was now referred to a regional hospital, where arthroscopy was carried out, showing severe synovitis and some degree of cartilage destruction. Arthrotomy was performed during the same session, and an extensive synovectomy was carried out. The synovium was highly inflamed and in some locations necrotic. In the anterior part of the joint, above the lateral meniscus a 2 × 10 mm piece of thorn was found and removed (Figure 2). Five negative tissue cultures were obtained from the synovium. Microscopy showed acute and chronic inflammation.

Two days after surgery, the boy was pain-free and afebrile. He was discharged from hospital 2 weeks later with ESR 18 mm and a knee range of motion 0–90°. Flexion had increased to 110° 2 months later and, as initially, radiographs were normal.

Discussion

Thorns, such as those from the blackthorn (Kelly 1966), reproduced here in full size, palm (Kirschner & Hanafee 1953, Cahill & King 1984), yucca and rose (Maylahan 1952) have been shown to cause foreign body cysts, bursitis, tenosynovitis, synovitis and also bony reaction of aseptic origin (Maylahan 1952, Borgia 1963). The case reports in the literature show as consistent features the patient's delay in seeking medical advice, the doctor's delay in making the correct diagnosis, and hence a delay in therapy, especially when no history of injury is revealed by the patient. Kelly (1966) reported the mean time before seeking medical advice to be 10 weeks, and Cahill & King (1984) reported a mean delay until diagnosis and treatment of 10 weeks.

Our patient received primary medical treatment on the day of injury, and the blackthorn

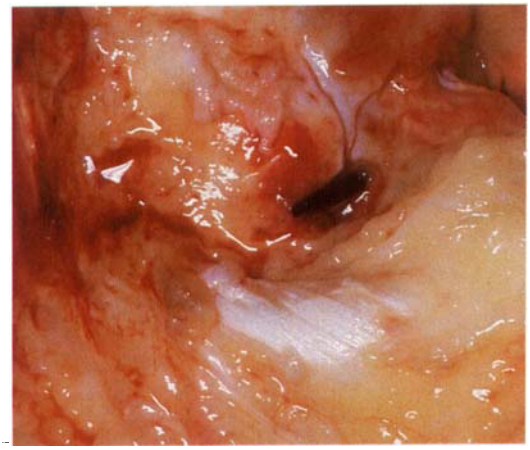

Figure 2. Severe synovitis noted at synovectomy. Piece of blackthorn in the synovium lateral to the tibial insertion of the anterior cruciate ligament.

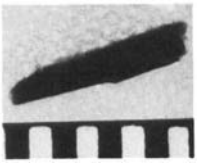

Figure 3. The thorn after extraction (mm-scale).

injury and the suspicion of thorn remnants in the knee were related by him. Even so, it was over 3 months before a correct diagnosis was made and appropriate treatment given. This may be explained in part by the rarity of the disease, and in part by the patient's report of thorn remnants possibly being overlooked. To the authors' knowledge, no case has hitherto been reported from Scandinavia.

The main differential diagnoses are septic arthritis and juvenile chronic monoarthritis, both of which were considered in the current case.

Why certain thorns cause intense inflammatory reactions is not clear. The alkaloids present in the thorns have been regarded as a possible cause. In Colombian monkeys, where thorns have frequently been found in the skin, subcutaneous tissues and synovial tissues, little reaction has been seen around the thorns, except in the synovium where granulomatous infiltrates developed (Schumacher & Majno 1967). Human synovial tissue is probably also prone to react against these vegetable substances.

We now know that blackthorn may cause synovitis in Scandinavian countries also; our case confirms the delay in diagnosis and therapy which has often been reported.

Acknowledgements

Grants from Greta och Johan Kocks Stiftelse, Alfred Österlunds Stiftelse and Norrbacka-Eugenia Stiftelsen are gratefully acknowledged.

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