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A case report of remitting seronegative symmetrical synovitis with pitting oedema

Sivagurunathan K[1], Sivapalan S[1], Rajeswaran A[1]

[1] Teaching Hospital Jaffna

Abstract

Syndrome of Remitting Seronegative Symmetrical Synovitis with Pitting oedema (RS3PE) is a rare condition which is easily missed because of lack of clinical vigilance and presence of other relatively common rheumatological conditions that mimic RS3PE. We discuss a case which presented with acute onset synovitis and pitting oedema of the extremities. The patient did not have any other systemic causes for pitting oedema. He had elevated inflammatory markers and negative rheumatoid factors. There was no radiological evidence of bony erosion. Ultrasound scan of hands showed evidence of extensor tenosynovitis. He had a significant response to low dose steroids. RS3PE may be associated with malignancy and it was excluded during our evaluation.

Correspondence to:

Kajananan Sivagurunathan

Registrar in General Medicine
Teaching Hospital Jaffna
Sri Lanka

E-mail:
skaja001@gmail.com

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Introduction

Syndrome of Remitting Seronegative Symmetrical Synovitis with Pitting oedema (RS3PE) is an acute presentation of polysynovitis with pitting oedema of bilateral extremities. Other characteristic features include negative rheumatoid factor (RF), absence of bony erosion, and favourable outcome with low dose steroids. Other rheumatic diseases, such as rheumatoid arthritis, spondyloarthropathies and, polymyalgia rheumatica, which are relatively common than RS3PE, may also present with pain and swelling. Clinical, radiological, and biochemical evaluation may distinguish these conditions from RS3PE. In this case, we describe a patient whose initial presentation was bilateral pitting oedema of the extremities and pain without any other systemic cause for oedema.

Case presentation

A 52-year-old man with hypertension and asthma presented with bilateral swelling of hands and legs for 10 days which was associated with pain in the wrist joint, small joints in hand and ankle joints. The joint pain was of acute onset, worsened with movements, and was associated with morning stiffness lasting for half an hour. He did not have fever or other constitutional symptoms. There was no history of urinary symptoms or altered bowel habits. He was a non smoker and a social drinker. On clinical examination, there was pitting oedema of both hands mainly on the dorsal surface and legs (Figure 1). The joints including the wrist, small joints in the hand and ankle joints were tender and warm. Other joints including sacroiliac joints were normal. Rest of the examination was unremarkable.

Figure 1 - Symmetrical distribution of pitting oedema in bilateral hands and legs

His laboratory investigations showed neutrophilic leucocytosis (white blood cell 13,900/µL; N:71%, L:24.5%, haemoglobin 11.9 g/dL, platelet count 430,000/µL) and elevated inflammatory markers (ESR 108 mm/1st hour, CRP 59 mg/L). His liver profile revealed an alanine transaminase of 95 U/L, aspartate aminotransferase of 43 U/L, alkaline phosphatase of 197 U/L, total bilirubin of 5.6 µmol/L, albumin of 37 g/L, globulin of 43 g/L and an INR of 1.2. The TSH, serum creatinine, electrolytes and urine analysis were within normal limits. Chest X-ray and echocardiography were normal. Ultrasound scan of the abdomen was normal except for the fatty liver. Thus systemic causes for oedema were excluded.

Subsequent investigations were focused on identifying the cause of arthritis . X-rays of both hands and ankle joint did not reveal any deformities or erosions. Ultrasound scan of the hands showed extensor tenosynovitis. Serum uric acid level was normal (257 µmol/L). Autoimmune serology including antinuclear antibody, RF and anti-cyclic citrullinated peptide antibody were negative. Antistreptolysin O titre was <200 IU/ml. Thus the diagnosis of RS3PE was established. He was administered celecoxib 200 mg twice daily and oral prednisolone 20 mg daily. A dramatic improvement was observed in oedema and joint pain during the follow up visit after two weeks. The course prednisolone was tailed off over one month. The patient remained in remission 8th months into follow up. As RS3PE may manifest as a paraneoplastic syndrome, he was screened for possible malignancies by testing for tumour markers (prostate specific antigen, carcinoembryonic antigen, and alpha-fetoprotein), and performing contrast enhanced computed tomography of chest, abdomen and pelvis, findings of which were unremarkable.

Discussion

RS3PE was first described by McCarty et.al in 1985 with a case series of 10 elderly patients who presented with acute onset of symmetrical synovitis with pitting oedema of extremities (1). A retrospective study done by Olive et.al in patients with RS3PE described diagnostic criteria for RS3PE as follows: 1. pitting oedema of bilateral extremities, 2. acute onset of synovitis, 3. age more than 50 years, 4. negative RF (2). Our patient

fulfilled the above criteria. RS3PE is considered as a distinctive condition. However, in clinical practice, it is not an easy task to diagnose RS3PE, because the mimics (rheumatoid arthritis, spondyloarthropathy, polymyalgia rheumatica) are substantially more common. Our diagnosis of RS3PE was further supported by absence of bony erosions and improvement with low dose steroids with complete remission.

Even though symmetrical involvement had been classically reported as in our case, unilateral presentation has also been described (3). Most of the reported cases were in the elderly but rarely young cases have also been recognised (4). Bony erosions are not a recognised feature of RS3PE (5). A study done by Agarwal et.al showed that tenosynovitis is more common in the extensor than the flexor aspect as in our case (6). USS with colour doppler is a cost-effective investigation modality to evaluate tenosynovitis.

Etiopathogenesis of RS3PE is still unsettled. Some studies proposed that vascular endothelial growth factor (VEGF) may play a role in oedema formation (7). HLA-B7 was found to be associated in some reported cases (1). Infective agents such as Streptobacillus moniliformis, Mycoplasma pneumoniae, and Parvovirus have been suspected as triggering factors (8).

A review article by Yao et.al suggested that RS3PE may be associated with malignancy and present as a paraneoplastic syndrome (8). It has been reported in association with solid organ malignancies such as ovary, endometrium, lung, gastrointestinal tract, liver, breast, and prostrate and haematological malignancies such as leukaemia and non-Hodgkin's lymphoma. Thus, all the cases of RS3PE should be screened for neoplasms.

RS3PE usually responds to small doses of prednisolone (5-20 mg) and has an excellent prognosis. Hydroxychloroquine and nonsteroidal anti-inflammatory drugs (NSAIDS) may have some beneficial effects. Most of the cases achieve full remission with a course of steroids. If they relapse or fail to respond, an underlying malignancy or an alternative diagnosis must be considered. There are case reports highlighting steroid resistant RS3PE in the absence of malignancy. A patient who presented with RS3PE associated with gout has been successfully treated with TNF inhibitor, etanercept (9). Tocilizumab has been used as a successful choice in a patient who has had a relapse while tailing off steroids (10).

Conclusion

RS3PE is characterised by rapid onset of synovitis with pitting oedema, negative serology of rheumatoid factor, absence of bony erosions, and a remarkable outcome to low-dose steroids, with a sustained remission. It may be a paraneoplastic syndrome especially in those who show poor response to steroids. Thus, evaluation for underlying malignancy is indicated.

Article information

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