CASE STUDIES

Hyperlipidemia with polyarthritis: A case report

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Abstract

Hyperlipidemia can give rise to acute polyarthritis and the disease is more often confused with reactive arthritis or other causes of polyarthritis. We report here a case of secondary hyperlipidemia with clinical presentations of acute polyarthritis

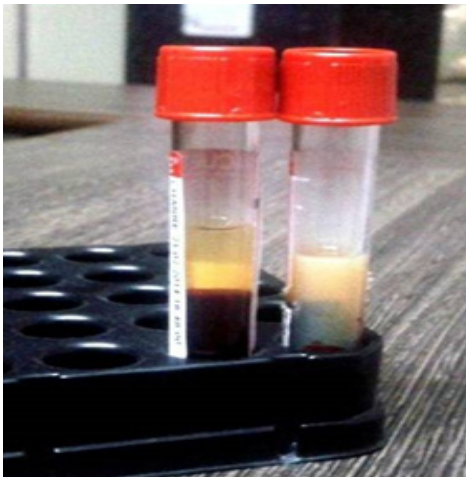
Introduction

Hyperlipidemia may give rise to various musculoskeletal disorders (MSK) such as mono-, oligo- or polyarthritis, tendinitis (type II and type IV hyperlipoproteinemia), migratory polyarthritis similar to rheumatic fever (homozygous type II hyperlipidemia) or even simple arthralgias.[1-3] The most satisfactory explanation for these arthrtis/arthralgia symptoms can be microcrystalline deposition of lipids. Literature search reveals that MSK manifestations are mostly observed in familial cases of hyperlipoproteinemia, especially in pediatric cases.

Case report

A 42-year-old diabetic female (claiming good glycemic control) presented with multiple joint pain (small and large joints) along with swelling over wrists, hands, and ankles. The first episode of pain in wrist joints, which commenced around three months before, was minimal without any special characteristic features. The patient developed second episode of polyarthritis involving almost all small and large joints following fever, probably viral. The febrile illness, which lasted for one week, was associated with generalized arthralgias and myalgia without any rash/eruption, jaundice, lymphadenopathy, enteritis, or respiratory/urogenital tract infections. The duration between febrile illness and second episode of arthritis was one and half months. The joint pain started in wrists and small joints of hands, and later affected large joints along with swelling in wrists, hands, and ankles. Joint pain was additive and incapacitating, lasting throughout the day. The total duration of the pain was around 15 days before presenting to the outpatient facility. There was no family history of connective tissue disease or premature death. She underwent hysterectomy two years earlier (oophorectomy status unknown) and was diabetic since 10 years. She was on glimepiride twice daily. No back pain, thyroid, dermatological, urogenital or eye problems was reported.

Fig 1: Highly lipemic serum sample



Her general and systemic examinations were unremarkable. Musculoskeletal examination revealed inflamed and swollen wrists, ankle, and metacarpophalangeal (MCP) joints. Tenderness on palpation and movement (active & passive) of large joints were noted. Enthesitis in the form of tendoachilis tenderness was present. Since her serum sample was found to be very lipemic (Figure 1), fasting lipid profile was also carried out (Table 1) along with other relevant clinical investigations (Table 2). X-ray of hands indicated mild juxta-articular osteoporosis (Figure 2).

Based on the history, clinical presentation, and lab investigations; the diagnosis was concluded as hyperlipidemia with polyarthritis. She was treated with a single dose methylprednisolone 160 mg injection on her first day visit. Daily dose of anti-lipid medications (atorvastatin 10 mg with fenofibrate 160 mg) and nonsteroidal anti-inflammatory drugs (NSAIDS) on need basis were also administered. The 2 months of treatment contributed to disease improvement, and resolution of joint pain and swelling.

Discussion

Presence of high triglycerides and total cholesterol, along with low LDL and HDL in lipid profiling confirmed the disease as hyperlipidemia. Patient was not on hormone replacement therapy and did not have obesity, hypertension or thyroid disease. The hyperlipidemia seems to be secondary or acquired, possibly due to (i) the patient being middle aged, diabetic with poor diabetic control, (ii) there was no family history of any premature atherosclerotic event. There was no tendon xanthoma or tendinitis. The patient responded well to anti-lipid therapy with resolution of arthritis and normalization of inflammatory parameters. Diabetes mellitus is commonly encountered as a cause of secondary dyslipoproteinemia. Other conditions leading to acquired hyperlipidemia include hypothyroidism, renal failure, nephrotic syndrome, alcohol use, and drugs such as diuretics, beta blockers, and estrogens.[4, 5] However, these conditions were absent in the current case.

It has already been established that systemic inflammation can be a notable contributor of lipid profile changes.[6] Conversely, evidence indicates that lipids can have a direct modulating effect on inflammation. For example, hypercholesterolemia induces inflammation by increasing circulating inflammatory cells.[7, 8] Some studies

Fig 2: X-ray of hands showing mild juxta-articular osteoporosis

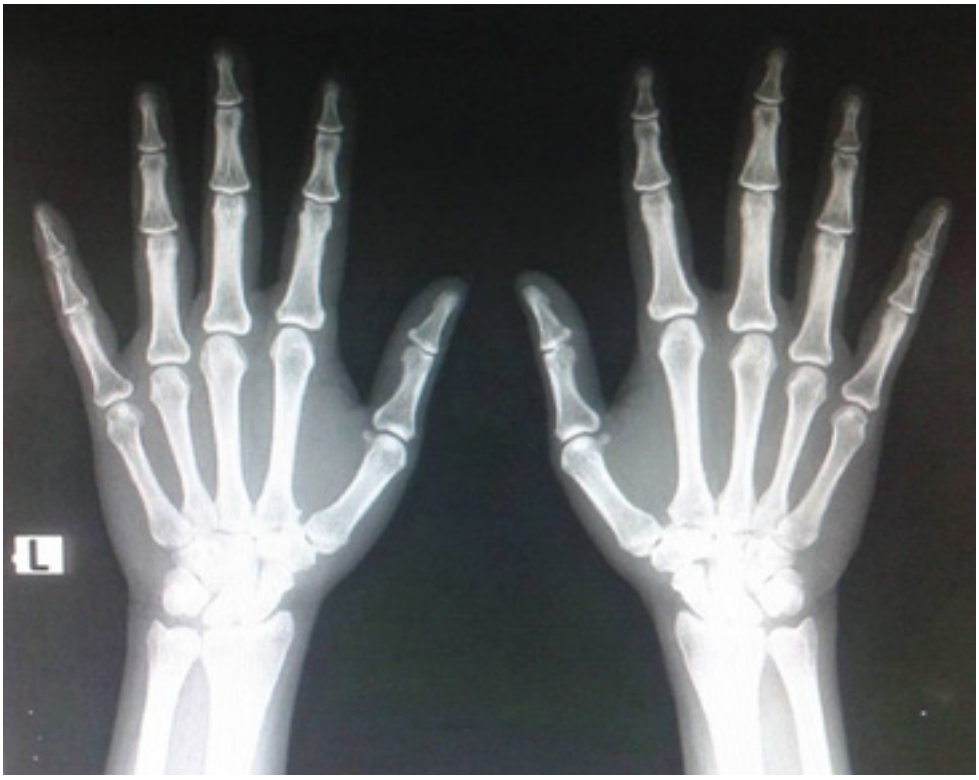


Table 1: Results of clinical and lab investigations

Parameters	Values
Hb (gm%)	12.9
Total leukocyte count (mm^3)	8670
Neutrophils (%)	57.8
Lymphocytes (%)	35.1
Eosinophils (%)	0.8
Platelets (mm^3)	2,50,000
ESR (mm)	71
CRP (mg/dL)	10.3
Bilirubin (mg/dL)	2
SGOT (IU/L)	6
SGPT (IU/L)	7
Creatinine (mg/dL)	0.7
RF	Negative
HIV, HBs, HCV	Negative
Chikangunya IgM	Negative
Apo A (mg/dL)	144
Apo B (mg/dL)	210
RBS (mg/dL)	272
Insulin F (µIU/ml)	9.7
TSH(µIU/ml)	2.56
ACTH (pg/ml)	25.1
Cortisol (µg/dL)	13.6
Proteins (g/dL)	8
Albumin (g/dL)	3.8
Anti CCP	Negative
ANA	Negative
Urine Routine	Trace proteinurea

Table 2: Lipid profiles before and after treatment

Parameters	Before treatment (mg/dL)	After treatment (mg/dL)
Total cholesterol	712	164
Triglycerides	2308	262
HDL cholesterol (direct)	33	37
LDL cholesterol	44	75
VLDL cholesterol	-	52
Total cholesterol / HDL ratio	21.6	4.4
Glycosylated hemoglobin (HbA1C)	-	10.1
CRP	10.3	3.65

have demonstrated an association between oxidized LDL cholesterol and proinflammatory cytokines such as interleukin-6 (IL-6) and tumor necrosis factor alpha (TNFα).[9]

In the present case, febrile illness could have triggered an inflammatory episode, which was subsequently potentiated by hyperlipidemia, or already existing hyperlipidemia could have triggered an enhanced inflammatory response.

Competing interests
The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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