e - ISSN - 2349 - 8005

INTERNATIONAL JOURNAL OF ADVANCES IN CASE REPORTS

Journal homepage: www.mcmed.us/journal/ijacr

ULTRA SONOGRAM - IN THE EARLY DIAGNOSIS OF JUVENILE PSORIATIC ARTHROPATHY

Parimalam K[1*], Subha R[2], Ananthi M[2], Suganthi V[2], Karpagam B[2]

[1]Professor and HOD; [2]Assistant Professor, Department of Dermatology,
Government Villupuram Medical College, Villupuram, Tamilnadu, India.

Corresponding Author: - **Parimalam Kumar**
E-mail: drparimalam@gmail.com

Article Info
Received 15/11/2015
Revised 27/11/2015
Accepted 16/12/2015

Key words: Ultra-sonogram, Childhood arthritis

ABSTRACT
Psoriasis, originally considered as a cutaneous disorder in the 19th century and earlier, is now proved to be a T lymphocyte mediated chronic inflammatory disorder of the skin and joints. The growing evidence in the pathogenicity of this disease leads to a paradigm shift in the concept that it is now considered as an immune mediated inflammatory disease [IMID]. Joint involvement is seen in at least 5% of all psoriasis patients. Though children are less affected, juvenile psoriatic arthritis [JPsA] is not uncommon which has to be diagnosed early. The role of ultra-sonogram [USG] in the early diagnosis of PsA is well established. We report a child with JPsA showing USG findings. Since PsA is a risk factor for developing metabolic syndrome [MS] and atherosclerotic cardiovascular disease, early detection of PsA in children will help prevent mutilation and development of MS in future. USG is one of the best non-invasive tools in the early diagnosis and management of JPsA.

INTRODUCTION

It was in the mid-19th century that an association between psoriasis and joint involvement first made. Currently the prevalence of PsA ranges from 6-42% [1]. In only 15% of adult psoriatic patients does arthritis precede skin manifestations and 15% have a simultaneous onset of both skin and joint involvement. But in children the frequency of simultaneous onset of skin and joint is much higher than that seen in adults. Nearly half of the children may have arthritis preceding the skin manifestation and JPsA may account for as high as 20% of childhood arthritis. These facts urge the need for an early diagnosis of PsA in children.

Case Report:

A twelve - year old girl of non-consanguineous parentage was seen for skin lesions. There was no past or family history of psoriasis. On a leading question she gave a complaint of mild pain in both the knee joints which improved on working, since the onset of skin lesions. On examination, she had plaque type psoriasis with a PASI score of 13.8. [Figure 1].There was no nail pitting, onycholysis or dactylitis. Her PASE score was 24. There was no pain or tenderness over the knee joint nor was there restriction of movement. However there was little difficulty in complete flexion of knee joint on both sides. Rest of her joints were clinically normal. ENT and dental referrals ruled out any focus of sepsis. On investigations, she had ESR of 28 mm/ hr. Her other parameters including haemoglobin, complete blood count, blood sugar, urea, serum creatinine, electrolytes, calcium, uric acid, liver enzymes were within normal range. She was negative for RA factor. USG of both the knee joints showed supra, pre and infra patellar effusion over both the knee joints. [Figure 2]

USG of the hands, feet, and tendo achilles did not show abnormalities. There was no bony erosion. After obtaining parents' consent, the child was started on Tab. Methotrexate 5mg per week along with folic acid and liquid paraffin topically and she was being followed up.

DISCUSSION

Childhood or Juvenile PsA is a clinically heterogeneous disorder constituting up to 20% of Juvenile

Idiopathic Arthritis [JIA]. JPsA can lead to irreversible joint damage if left unattended. There is paucity of literature on JPsA in India. There are many criteria to suspect and clinically diagnose PsA The simple and highly specific Classification Criteria for Psoriatic Arthritis (CASPAR) has a sensitivity and specificity of 98.7% and 91.4%, respectively. According to the diagnostic criteria established in 2001, PsA in children is defined as arthritis and psoriasis or presence of arthritis and two of the following [2]:

1. Dactylitis
2. Nail pitting or Onycholysis
3. Psoriasis in the first degree relative

With the following features excluded.

a. HLA B27 +ve boy, disease onset after the age of 6 yrs.
b. Presence in person or first degree family member, of ankylosing spondylitis, enthesitis, Reiter's syndrome
c. Presence of IgM RA factor
d. Presence of systemic JIA

The criteria defined by Vancouver have arthritis as one of the compulsory criteria which are included as major criterion. Following is the Vancouver's diagnostic criteria

Major criterion:

- Arthritis

Minor criteria:

- Dactylitis
- Nail pitting or onycholysis
- Psoriasiform skin lesion
- Family history of psoriasis in first or second degree relatives

Definite psoriatic arthritis: Arthritis + psoriasis or one major + 3 minor; Probable psoriatic arthritis: One major + 2 minor.

In JPsA, there seems to be a biphasic age of onset, with peaks occurring at approximately 2 years of age and again in late childhood. Younger children are more likely to be females and exhibit dactylitis and small joint involvement, with an increased tendency to progress to polyarticular disease. Whereas older children tend to manifest enthesitis, axial joint disease, and persistent oligoarthritis. It is to be remembered that despite a higher utilization of methotrexate therapy, younger patients may need longer duration of treatment to achieve clinical remission and hence the need for early diagnosis and appropriate treatment [3].

Imaging studies in patients with PsA have exposed a high level of subclinical inflammatory change. Efficacy of USG is found to be similar to that of magnetic resonance imaging in the diagnosis of PsA. These diagnostic techniques allow for early identification of joint lesions before destructive changes could appear [4, 5]. The European League against Rheumatism recommendations on the use of imaging techniques suggests the use of USG to increase the diagnostic accuracy of chronic arthritis as compared to clinical examination alone. USG has many advantages in diagnosing & managing inflammatory arthritis like low cost, good sensitivity & specificity, capability to detect effusion as small as 1-2 ml. In addition, the procedure is less time consuming and can be easily repeated in subsequent visits for comparison and it has adequate sensitivity with acceptable reliability. The sonographic differentiation between PsA and rheumatoid arthritis (RA) may be challenging. However, peri synovial inflammation is a specific finding of early PsA, and enthesitis is more frequently detected in PsA than in RA. In a Cross sectional study performed by Lin et al, in the PsA group, 60.9 % showed joint effusion [6]. Frediani et al documented enthesitis to be more frequent in PsA patients and found knee inflammation regardless of the concomitant presence of joint effusion. However, no significant correlation was observed between the presence of peripatellar psoriatic lesions and Enthesitis. To date, there is a wide body of evidence supporting the validity of US in the assessment of entheses [7]. The most affected site was the Achilles entheses, followed by distal patellar and proximal patellar entheses [8]. It was also observed in many studies that there is regression of synovial effusion following treatment, which can be considered as a reliable indicator of therapeutic response which was confirmed by the correlation of synovial fluid biomarkers [9, 10]. Our case who had a PASE score of less than 36, which could not be clinically diagnosed or even suspected as PsA using CASPAR or Vancouver criteria, had effusion above, in front and below the patella. These points to the usefulness of USG examination in the early diagnosis of PsA.

Figure 1. Clinical picture showing psoriatic plaques over the trunk and limbs

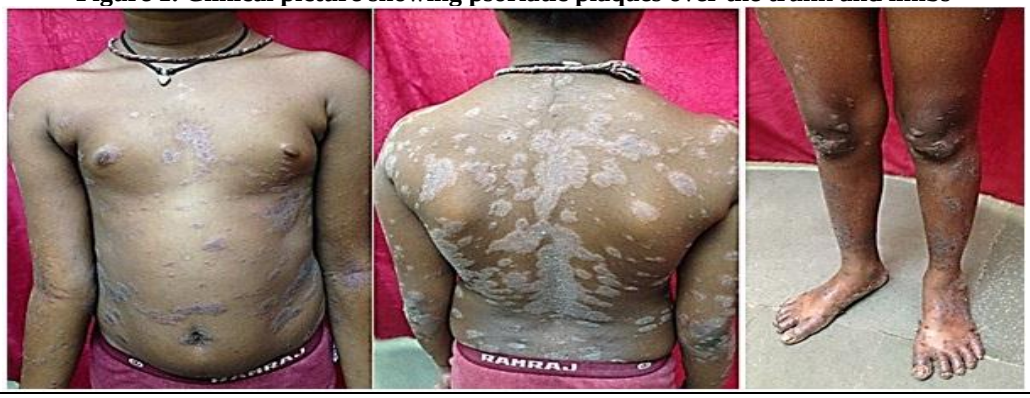
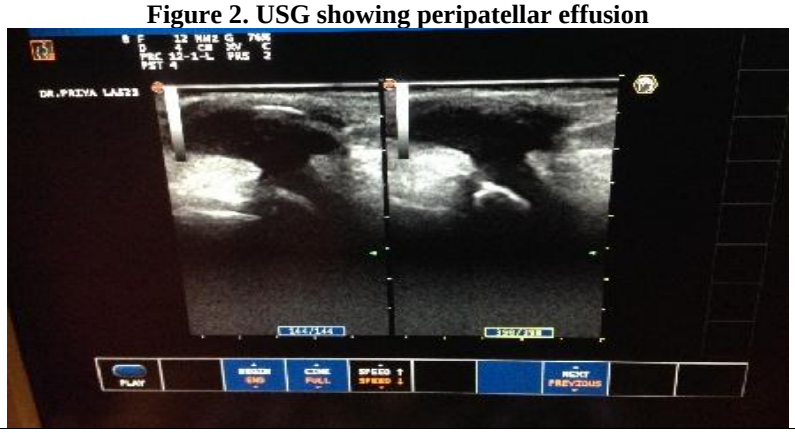


Figure 2. USG showing peripatellar effusion



CONCLUSION

To the best of our knowledge, as of now there is no Indian literature on the role of USG in the early diagnosis of JPsA. Since plain radiographs are insensitive to the soft tissue changes like peripheral joint effusion, synovial proliferation, structural abnormalities in tendons and entheses, tendon sheath thickening, bursitis which are radiologic signs of early arthritis, we wish to conclude that USG is an excellent non-invasive tool in the early detection of JPsA and should be performed in children with the slightest doubt of joint involvement, since an early diagnosis and appropriate treatment can well avert damage to the joint and crippling.

ACKNOWLEDGEMENT

We thank Dr. Mohanasundaram, Department of Radiology, for his help in getting the USG done.

CONFLICT OF INTEREST: Nil

STATEMENT OF HUMAN AND ANIMAL RIGHTS

All procedures performed in human participants were in accordance with the ethical standards of the institutional research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. This article does not contain any studies with animals performed by any of the authors.

REFERENCES

1. Zochling J, Smith EU. (2010). Seronegative spondyloarthritis. *Best Pract Res Clin Rheumatol*, 24(6), 747-56.
2. Hofer M, Southwood TR. (2002). Classification of childhood arthritis. Best Practice & Research Clinical Rheumatology, 16(3), 379- 96.
3. Stoll ML, Zurakowski D, Nigrovic LE, Nichols DP, Sundel RP, Nigrovic PA. (2006). Patients with juvenile psoriatic arthritis comprise two distinct populations. *Arthritis & Rheumatism*, 54, 3564–3572.
4. Coates LC, Hodgson R, Conaghan PG, Freeston JE. (2012). MRI and ultrasonography for diagnosis and monitoring of psoriatic arthritis. Best practice & research. *Clinical rheumatology*, 26(6), 805-22.
5. Sankowski AJ, Lebkowska UM, Cwikła J, Walecka I, Walecki J. (2013). The comparison of efficacy of different imaging techniques (conventional radiography, ultrasonography, magnetic resonance) in assessment of wrist joints and Metacarpo-phalangeal joints in patients with psoriatic arthritis. *Pol J Radiol*, 78(1), 18–29.
6. Lin Z, Wang Y, Mei Y, Zhao Y, Zhang Z. (2015). High-frequency ultrasound in the evaluation of psoriatic arthritis: a clinical study. *Am J Med Sci*, 350, 42–46.
7. Frediani B, Falsetti P, Storri L, Allegri A, Bisogno S, Baldi F, Marcolongo R. (2002). Ultrasound and clinical evaluation of quadricipital tendon enthesitis in patients with psoriatic arthritis and rheumatoid arthritis. *Clin Rheumatol*, 21, 294–298**.**
8. Gutierrez M, Draghessi A, Bertolazzi C Erre GL, Saldarriaga-Rivera LM, López-Reyes A, Fernández-Torres J, Audisio MJ, Pineda C. (2015). Ultrasound in psoriatic arthritis. Can it facilitate a best routine practice in the diagnosis and management of psoriatic arthritis? *Clin Rheumatol*, 34(11), 1847-55.
9. Fiocco U, Sfriso P, Oliviero F, Roux-Lombard P, Scagliori E, Cozzi L, Lunardi F et al. (2010). Synovial effusion and synovial fluid biomarkers in psoriatic arthritis to assess intra articular tumor necrosis factor-α blockade in the knee joint. Arthritis Res Ther, 12(4), 148. Article available at http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2945042/
10. Husic R, Ficjan A, Duftner C, Dejaco C. (2014). Use of ultrasound for diagnosis and follow-up of psoriatic arthritis. *EMJ Rheumatol*, 1, 65-72.