VOLUME-8, ISSUE-2, FEBRUARY-2019 • PRINT ISSN No 2277 - 8160

Original Research Paper

Rheumatology

NAIL FOLD CAPILLOROSCOPIC FINDINGS IN MIXED CONNECTIVE DISORDER IN INDIAN PATIENTS:A RETROSPECTIVE STUDY FROM A TERTIARY CARE RHEUMATOLOGY CENTER

Shanmuganandan Krishnan Professor,Sree Balaji Medical college and Hospital

Neelam Bundel* Physician Chief medical officer,CRPF hospital,Bilaspur *Corresponding Author

ABSTRACT Mixed Connective Tissue Disease (MCTD) is a systemic connective disease characterised by a combination of systemic lupus erythmatosus, systemic sclerosis, polymyositis / dermatomyositis and Rheumatoid Arthritis with presence of very high titres of circulating autoantibodies to nuclear RNP antigen(anti-U1 small nuclear anti-ribonucleoprotein anti bodies).We report nail fold capillaroscopic changes in ndian patients with MCTD.

KEYWORDS :

INTRODUCTION

Mixed connective tissue disease (MCTD) is characterised by overlapping features of SLE, systemic sclerosis (SSc), and inflammatory myopathy, found in association with high titers of anti-U1 ribonucleoprotein (RNP) antibody,[1]

The anti-UI-RNP antibodies are hallmark of disease[2]. Patients usually evolve into MCTD over 2 years who have high titers without any criteria of MCTD.

MCTD presents with new onset RP, polyarticular joint pain with or without frank synovitis , swollen and puffy hands associated with raised u1 RNP antibodies.Alopecia, malar rash, lymphadenopathy or kidney damage are less common but can be present. Pleuritis, pericarditis, rash and myositis may also develop over time in the typical patient as additional features of MCTD[3-5]. As Raynauds is almost universal in patients with MCTD,finger nail capillaroscopy is abnormal in most MCTD patients with capillary dilatation and dropout. .Nail fold capillaroscopy (NFC)changes are similar to that of Systemic sclerosis but bushy formations seem to be characteristic of MCTD [6]. NFC uses a lens that allows analysis of the capillary morphology and microcirculation of nail fold. It is used as a non invasive, simple, repeatable, highly sensitive and inexpensive method of evaluating microvascular abnormalities in rheumatic diseases. In normal conditions, the microvascular pattern is characterized by a regular array of microvessels with large intra/ interindividual variability. It has been demonstrated that these capillaroscopic patterns correlate blindly with the clinical diagnosis, disease severity and prognosis in autoimmune connective tissue disease.There is no study of NFC changes in Indian patients and hence this retrospective study attempts to fill this gap.

Patients and methods

This was a retrospective study of 40 patients of mixed connective tissue disease attending the rheumatology OPD services of a tertiary care hospital.Nail fold capillaroscopic study was done using a computerised measurable capillorscope with 200 magnification and findings recorded.The findings were correlated with serological and clinical features.Their elaborate history was taken, all clinical features, immunological fetures and nailfold Capillaroscopic changes were noted and observed.All analysis are performed using statistical software. Pearson chi square test was employed to test the statistical difference between our cohort and historical cohorts[7,8].

RESULTS

Out of 40 , there were 38 females and 6 males in the age group of 18 years to 64 years.In our study following were the changes and percentage of patients out of 40 MCTD patients :- 1.CAPILLARY SIZE:In our study group 18 patients out of 40 were found to have Megacapillaries or dilated capillaries that is 45%.2. HAEMORRHAGES: In normal healthy individuals hemorrhages is usually not seen . In our study group 6 out of 40 MCTD Patients had hemorrhages seen that is 15% had micro hemorrhages in NFC.3.CAPILLARY DENSITYThe capillary density in normal individual is 6-8 mm. In our study group 9 out of 40 MCTD patients had reduced capillary density i.e. 22.5%. 02 MCTD patients out 9 had major abnormalities in form of markedly reduced capillary densities that was less than 6 mm.4.DISORGANIZATION OR CAPLLARY , RAMIFICATION OF CAPILLARIES In normal healthy individuals capillaries have length of 200 to 500 microms, with hair pin like shape and arrangement and they are arranged in parallel rows with no pathological haemmorrhages. Also looks can be long in (0 – 10 %) , may be tortuous in 10-30%), may have enlarged loops in (10-30%), may have Micro- haemmorrhages in (0-10%), angiogenesis in (10-30%) and sub papillary venous plexus may be seen in (30-50%) of healthy normal individuals, however giant loops and avascular areas are not seen in normal individuals. In our study group 09 patients out of 40 had disorganized capillaries i.e. 22.5%. Out of 09 patients , tortuous capillaries were seen in 3 patients, Drop outs or avascular areas were seen in 4 patients, Angiogensis was seen in 1 patient , Branching or ramification was seen in 1 patient and Crossed loops were seen in 2 patients 5.AVASCULAR AREASIn normal healthy individuals no avascular areas are seen. In our study group 2 patients out of 40 MCTD patients were found to have avascular areas, i.e. 5% .It was found that patient with NFC changes with typical MCTD features had Pulmonary Hypertension, had interstitial lung disease , their ANA titres were very high with 4+ speckled pattern . In few C3 and C4 levels were raised and also seen were rise in CRP level as an indication of inflammation. To sum up. all patients with NFC changes had multi organ involvement with high titres of ANA and NFC changes are thus suggestive of progressive form of disease with multi organ involvement

DISCUSSION

Nailfoldcapillaroscopic changes in MCTD patients are indicative of microvascular changes and the changes seen in NFC correlates with the disease activity. In our study group, 45% patients had dilated or megacapillaries,15% had microhaemorrahges, 22.5% had reduced capillary densities and 22.5% had disorganized capillaries in form of tortuous capillaries, drop outs, avascular areas, angiogenesis, branching or ramification and crossed loops.

Comparison between Miami MCTD cohort , Missouri MCTD cohort[7] and our Sstudy (data are number %)

Characteristic	All Miami MCTD n=21	Miami Hispanic MCTD n=12	Missouri MCTD, n=51	Our study n=40	p-value
Raynaud's	18 (86)	11 (92)	45 (90)	40 (100)	0.136
Hand Swelling	16(76)	10 (83)	41 (85)	35 (87.5)	0.702
Alopecia	16 (76)	8 (73)	14 (29)	21 (52.5)	<0.001
Synovitis	16 (76)	12 (100)	40 (81)	40 (100)	0.004

Sicca Symptoms	12 (57)	8 (73)	22 (59)	9(22.5)	0.01
Lymphopenia	12 (57)	9 (75)	30 (67)	22 (55)	0.66
GE reflux	11 (52)	6 (50)	40 (80)	9 (22.5)	<0.001
Pericarditis/ Pleuritis	10 (48)	2 (18)	19 (37)	9 (22.5)	0.115
Photo sensitivity	8 (38)	6 (55)	22 (45)	16 (40)	0.91
Myosits	8 (38)	5 (50)	14 (28)	10(25)	0.557
Sclerodactyly	4 (19)	4 (33)	25 (50)	20 (50)	0.074
Malar Rash	3 (14)	2 (18)	20 (42)	16 (40)	0.088
Renal disease	2 (9)	1 (9)	6 (12)	7 (17.5)	0.74

The percentage of clinical features were comparable with previous historical cohorts in most of the clinical features, however $p<0.001$ in alopecia and gastro-oesophageal acid reflux which is highly significant . In our study 52.5 % of paients had alopecia while previous studies had 76%, 73% and 29% respectively in Miami and Missouri MCTD cohort. Gastro oesophageal acid reflux was seen in 22.5% in our study and 52% ,50% and 80% in previous cohorts.It was observed that NFC changes correlates with organ specific involvement as well as immunological features. All patients with NFC changes had intersitial lung disease, pulmonary hypertension and their ANA were in high titres with 4+speckled pattern.Among patients who had NFC changes18 had , polyarthritis, 14 had digital ulcers in 14 patients, and 16 patients, had skin rash.. Lung involvement was present in in all 18 patients with NFC changes and 9 patients with NFC changes had cardiac involvement.

This retrospective study found that MCTD patients presents with different NFC features and that the NFC changes closely correlates with various systemic manifestations and disease activity. Various organ involvement and NFC changes were similar to other cohorts.[6-8.]

CONCLUSION

There area variety of NFC changes in Indian patients with MCTD comparable to other cohorts world wide.To the best of the knowledge this is the first study of NFC in patients with MCTD in India.

REFERENCES

1. Bennett RM. Overlap Syndromes. In: Textbook of Rheumatology, 8th, WB Saunders Co, Philadelphia 2009.
2. Hoffman RW, Sharp GC, Deutscher SL. Analysis of anti-U1 RNA antibodies in patients with connective tissue disease.Association with HLA anc clinical manifestations of disease. Arthritis and Rheumatism 1995;38:1837–44.
3. Van den Hoogen FH, Spronk PE, Boerbooms AM, et al: Long-term follow-up of 46 patients with anti(U1) snRNP antibodies, Br J Rheumatol 33:1117-1120, 1994.
4 Bennett RM, OÇonnell DJ: Mixed connective tissue disease : a clinicopathologic study of 20 cases, Semin Arthritis Rheum 10 (1):25-51, 1980.
5.. Pope JE: Other manifestations of mixed connective tissue disease, Rheum Dis Clin North Am 31 (3) :519-533, vii, 2005.
6.. Maricq HR, Maize JC: Nailfold capillary abnormalities. Clin Rheum Dis 1982; 8: 455- 78.
7. Maldonado ME, Perez M, Pignac-Kobinger J, et al Clinical and immunologic manifestations of mixed connective tissue disease in a Miami population compared to a Midwestern US Caucasian population. J Rheumatol 2008; 35:429-37