Original Research

Clinicopathological Study of Xanthogranulomatous Oophoritis-a 6-Year Retrospective Study in a Tertiary Care Hospital

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Abstract

Background: Xanthogranulomatous oophoritis is a rare chronic inflammatory process involving ovary. Essentially it affects ovaries alone and or fallopian tubes focally or entirely forming and adnexal mass in the pelvic cavity. In this study,we aimed to analyse the clinicopathological features of xanthogranulomatous oophoritis and its prognostic implication.

Methods: This was a retrospective study conducted over a period of 6 years.A total of 18 cases were evaluated.

Result: Xanthogranulomatous oophoritis was seen most commonly in the age group of 41-50 years. Abdominal pain was the most common clinical presentation. Microscopically there was chronic inflammatory cells, foamy histiocytes and multinucleated giant cells in the ovarian stroma. Though histopathological examination is gold standard procedure, combined routine histopathology and immunohistochemistry was required for a conclusive diagnosis in difficult cases.

Conclusion: To conclude, though the condition is rare, due to its tendency to extend to the surrounding tissues and formation of mass lesion, it closely mimics ovarian malignancy both clinically and radiologically leading to close follow up of these patients for optimal patient care.

Key words: Ovary, Oophoritis , Pelvic mass, Xanthogranuloma

Introduction

Xanthogranulomatous oophoritis is a rare, non neoplastic chronic inflammatory process involving ovary.[1] Fewer than 50 cases have been reported of xanthogranulomatous inflammation affecting the ovary or fallopian tube with vast majority reported in India.[2] Various terminologies are used

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for the lesions such as ovarian fibroxanthoma, xanthogranulomatous inflammation of the ovary etc.[3] Essentially it affects ovaries and/or fallopian tubes either focally or entirely forming an adnexal mass occupying the pelvic cavity also invading in to surrounding tissues.[4]

Xanthogranulomatous oophoritis most commonly affects females of reproductive age (range: 23-72 years).[3] Xanthogranulomatous inflammation of the female genital tract is an unknown entity and frequently involves the endometrium, however xanthogranulomatous oophoritis is a rare phenomenon.[5] Development of this rare entity with uncertainaetiology[6] may have a multiple predisposing factors such as pelvic inflammatory disease, Intrauterine device use, uterine leiomyoma, endometriosis and inappropriate antibiotic use.[7] Since the lesion presented as a mass involving the pelvic cavity with local infiltration and destruction of the surrounding tissues, both clinically and radiologically it is misinterpreted as ovarian neoplasm.[8,9] These lesions are commonly mistaken for malignancy (Tubo Ovarian Mass), tubo-ovarian abscess or tuberculosis.[10,11] Histopathological examination after salpingoopphorectomy is the gold standard for diagnosis of this entity. Correct diagnosis is very important because the diagnostic entities such as malignancy, abscess or tuberculosis which mimics this entity and has a drastically different management protocol.

In this retrospective study, we aimed to analyse clinicopathological features of xanthogranulomatous oophoritis and its prognostic implication.

Materials and Methods

Study duration and design: This was a retrospective study conducted over a period of 6 years from March 2018 to March 2024 in College of Medicine and Sagore Dutta Hospital.

Inclusion criteria: All the cases diagnosed as xanthogranulomatous oophoritis in our institution were included in our study. Most of the patients had clinical signs and symptoms suggestive of pelvic inflammatory disease with some of them having history of painful menstrual cycle suggesting endometriosis. Some of them also presented with infertility.

Exclusion criteria: The cases which had additional pathology especially malignancy of the adnexa (fallopian tube and ovary) were excluded from the study.

All the clinical parameters including clinical presentation, age, radiological findings were documented from the clinical records. The corresponding Haematoxylin and Eosin stained slides were reviewed by two independent pathologists and all the associated findings were documented. The patient data was anonymised.

Statistical analysis: All the data were presented as number and percentage (as applicable)by using software version IBM SPSS 20.0.

Results

A total of 18 cases were evaluated. Xanthogranulomatous oophoritis was observed in a wide range of age group including <20years and >60 years at both extremes. Maximum number of cases were between the age range of 41-50 years (9 out of 18 cases, 50%).Other cases were as follows:1 case(<20 years), 2 cases (21-30 years, 3 cases (31-40 years), 2 cases (51-60 years) and 1 cases (>60 years). The most common clinical presentation was abdominal pain(18,100%). Abdominal mass on radiology with fullness/heaviness in the lower abdomen clinically was seen in 11 cases (61%)(Table 1). Radiologically isolated involvement of ovary or adnexa as mass lesion was seen in 7 cases(38.8%) , with extension to the surrounding tissue such as myometrium and endometrium was seen in 11 cases (61%) (Table 2).

On microscopic examination (Table 3) (Figure 1 and 2), chronic inflammatory cells and foamy histiocytes (figure 2a) were seen in all cases (18,100%) (Table 3). Suppurative inflammation (polymorphs) (Figure 2b) seen in 10 cases (60%)and multinucleated giant cells(Figure 2b) were seen in 9 cases(50%) (Table 3). Among the additional pathologies foreign body was seen in 5 cases(30%)(Figure 2b), hemosiderin laden macrophages(Figure 1a) seen in 7 cases (38.8%),endometriosis (Figure 1a&1b) in 7 cases(38.8%) and tubal gestation in 3 cases (16.6%).

Table 1: Clinical features of patients with xanthogranulomatous oophoritis

	Parameters	Number	Percentage(%)
A	Age(years)		
	<20	1	5.5
	21-30	2	11.1
	31-40	3	16.6
	41-50	9	50
	51-60	2	11.1
	>60	1	5.5
B	Clinical presentation (Complaints)		
	Abdominal pain Abdominal fulness(Heaviness in lower abdomen)	18 11	100 61.1%

Table 2: Radiological findings of patients with xanthogranulomatous oophoritis

	Parameters	Number	Percentage(%)
A	Isolated ovary and or adnexa involvement	7	38.8
B	Extension and adhesion to the surrounding tissue	11	61.1

Table 3: Microscopic findings in xanthogranulomatous oophoritis

	Parameters	Number	Percentage(%)
1	Suppurative inflammation (Acute inflammatory cells)	10	60
2	Chronic inflammatory cells	18	100
3	Foamy histiocytes (Xanthoma cells)	18	100
4	Multinucleated giant cells (Tuton cells)	9	50
5	Foreign body	5	30
6	Hemosiderin laden macrophages	7	38.8
7	Endometriosis	7	38.8
8	Tubal gestation	3	16.6

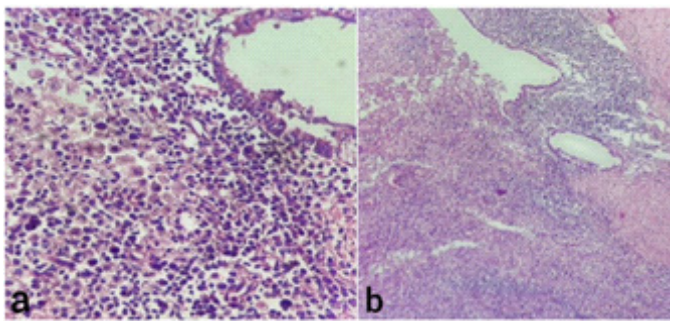

Figure 1: Showing presence of hemosiderin laden macrophages and foci of endometriosis in lower (H&E, 100X) (Fig 1a) and higher magnification (H&E, 400X) (Fig1b)

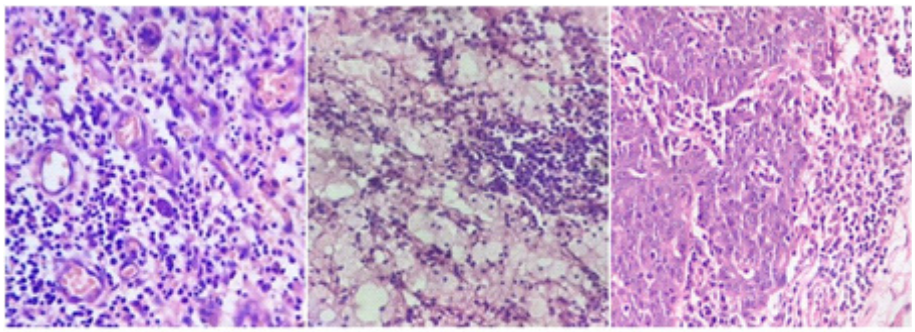

Figure 2: Showing presence of chronic inflammatory cells, foamy histiocytes (Fig 2a), suppurative inflammation with multinucleated giant cells(Fig 2b) and sheets of pleomorphic tumor cells (yellow arrow) surrounded by chronic inflammatory cells(black arrow)(Fig 2c)([H&E,400X]

Discussion

Xanthogranulomatousoophoritis [ICD coding-ICD-10:N70.92-oophoritis, unspecified][3] is a rare [12] and persistent inflammation of the female genital tract and associated with destruction of the surrounding tissue.[4] The exact pathophysiology of this entity is unknown. It is associated with pelvic infection. Development of this entity can have multiple predisposing factors for example pelvic inflammatory disease, intrauterine device use, uterine leiomyoma ,endometriosis, inappropriate antibiotic intake and ineffective clearance of bacteria by phagocytes.[1,7]

Salmonella typhi, Escherichia coli, staphylococcus aureus have all been proposed as possible inciting etiological factors. The xanthomatous process begins as a result of macrophages phagocytosing these biological components.[13] Due to its locally destructive nature,it is often mistaken as a pelvic lump or tumor and can resemble cancer.[14] Histopathological examination is the gold standard to diagnose the condition. The other inflammatory conditions that come as differential diagnosis such as tuberculosis and fungal infections should be ruled out by special stains such as Ziehl-Neelsen stain for acid fast bacillus and periodic acid Schiff stain.

Due to its rarity, this condition is described as case reports in various literature.[15,16,17] Only few original research articles were studied.[18,19] In our study, most of the patients were in the age range of 31-40 years (Table 1) similar to the study by Parul M et al.[19] In our study most common clinical presentation was abdominal pain and was seen in all the cases (n=18,100%) (Table 1) as stated by Bhatnagar K et al.[1] Radiologically extension of the lesion to the surrounding tissue was seen in 11 cases(61.1%) and isolated ovarian involvement was seen in 7 cases(38.8%) (Table-2)

On microscopic examination, foamy histiocytes (Figure 2a) and chronic inflammatory were seen in 10 cases (60%) and 9 cases (50%) respectively (Figure 2b). Additionally hemosiderin laden macrophages and endometriosis were seen in 7 cases (38.8% (Figure 1a&1b) (Table-3). Contrast to this, in ovarian carcinoma there is presence of sheets of pleomorphic tumor cells (Figure 2c, yellow arrow) surrounded by chronic inflammatory cells(Figure 2d,black arrow).

Though histopathological examination is the gold standard procedure for the diagnosis, combined histopathology and immunohistochemistry are required for a conclusive final diagnosis in difficult cases. Positive IHC stains include CD68 in foamy histiocytes, CD3 in T cells,CD20 in B cells.[3,4] Negative stains include Pankeratin(AE1/AE3)

Conclusion

Xanthogranulomatous oophoritis is a rare condition and often poses a diagnostic challenge for the clinicians as the clinicoradiological presentation often mimics malignancy. Since it is usually associated with pelvic inflammatory disease, endometriosis, intrauterine device etc, these patients should be on regular follow up for an optimal patient care and better management.

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Ethical Clearance: This was a retrospective study and **hence** ethical clearance was not taken. The patient data was anonymised.

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