

**Fig. 2 :** Eosinophilic granuloma showing central conglomerate of epithelioid histiocytes, macrophages and multinucleated cells encircled by varying number of eosinophils and lymphocytes. Central necrosis in the form of amorphous eosinophilic material is also demonstrated. (X 100)

## Results

Analysis of 869 appendectomy specimens during 1995 - 1999 was made. After review of the clinical records, pathologic reports and microscopic slides a total of 33 cases were deemed acceptable for inclusion in this study with 11 parasitic - infested cases and 22 cases of Eab and EG.

The salient clinical and histopathologic features are summarized in table 1 and 2

The patient population in Eab and EG group was composed of 15 males, aged 12 - 44 years and 7 females, aged 14 - 51 years, showing male preponderance. In parasitic infested group, 11 cases were identified with 5 males, aged 19 - 30 years and 6 females, aged 6 - 39 years (M : F = 5 : 6). Most cases came with the chief complaint of right lower quadrant pain and acquired surgical exploration for the diagnosis of acute appendicitis. Only three cases had incidental appendectomy due to other diseases viz. endometrioid carcinoma of ovary (case 8, table 1), endometriosis of the ovary and peptic ulcer (case 3 and 6, table 2).

**TABLE 1** Clinical data and histopathologic features of eosinophilic abscess and granuloma

Case	Sex/age	Clinical data	Microscopic Features	Acute appendicitis	
1	M/26	RLQ pain	EGCN		
2	M/32				
3	M/36				
4	M/33				
5	M/38	RLQ pain	EGON		
6	M/39		EGON, Eab		
7	F/41		EGON, Eab		
8	F/51	*Rt. Ovarian mass	EGON (Healed granuloma) Endometrioid carcinoma		
9	M/12	RLQ pain	EGCN + EGON		
10-	M/26, 28, 44	RLQ	Eab		
15	F/14, 18, 25	Pain	Intense at submucosa		
16	M/33	RLQ Pain	EGCN		+
17	M/20		EGCN + EGON		
18-	M/20, 31, 39		Eab		
22	F/15, 29		Intense at submucosa		

RLQ : Right lower quadrant ; EGCN : Eosinophilic granuloma with central necrosis ;

EGON : eosinophilic granuloma without necrosis ; Eab : Eosinophilic abscess ;

- : without acute appendicitis ; + : with acute appendicitis

\* : incidental appendectomy to other elective procedure

**TABLE 2** Clinical data and histopathologic features of parasitic infestation

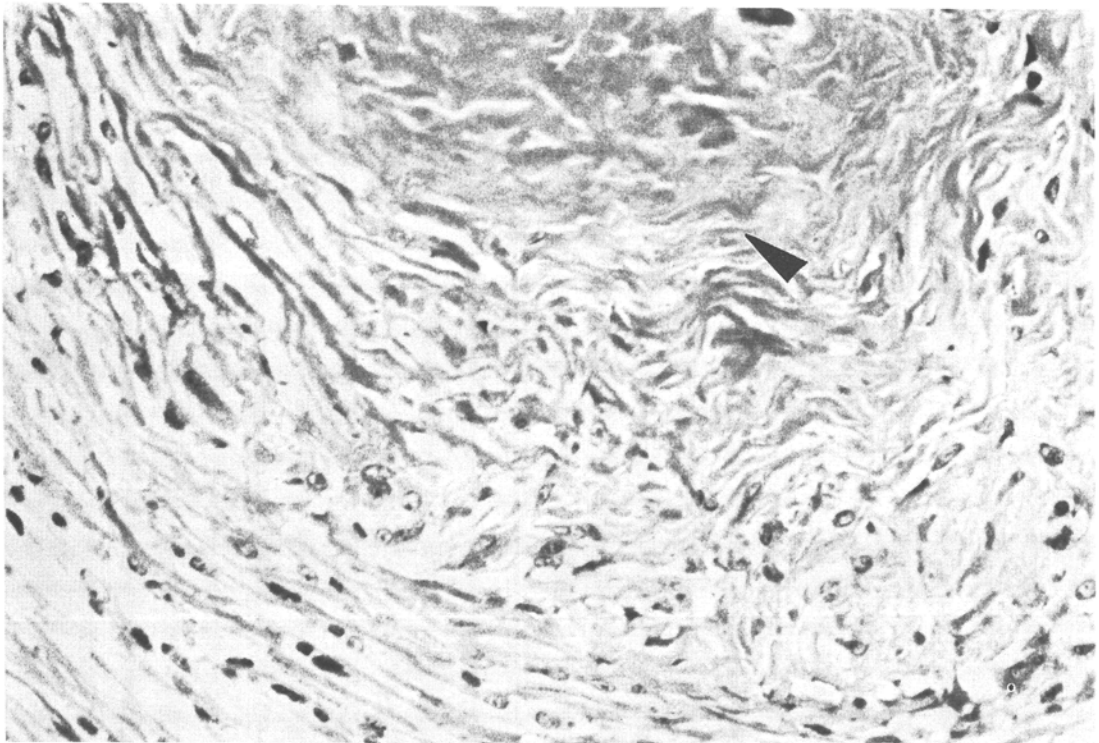
Case	Sex/age	Clinical data	Microscopic feature	Acute appendicitis
1	M/19	RLQ	Enterobius	
2	F/18	pain	larvae	
3	F/30	*Lt. Ovary : Endometriosis	Enterobius larva Endometriosis of ovary, appendix	
4	M/23	RLQ	Taenia	
5	M/24	pain	ova	
6	M/30	*Peptic ulcer	Taenia body and ova	
7	F/6	RLQ  pain	Enterobius  larvae	+
8	F/11			
9	F/35			
10	F/39			
11	M/24		Taenia ova	

The abbreviation and symbol are similar to those of the table 1

**Microscopic features**

Eleven cases of EG were found out of 22 Eab and EG cases, four of which had central necrosis in the form of central amorphous eosinophilic material (fig. 2), four without central necrosis. Two out of four EGON cases had combined Eab (case 6, 7 table 1), one case had multifocal healed hyalinized granulomas (fig. 3) with intense submucosal eosinophilic infiltration and the clinical manifestation of endometrioid carcinoma of the ovary. Two cases had combined EGON and EGON (cases 9 and 17, table 1). Nine cases were in non - acute appendicitis group whereas the remaining two had acute inflammation.

For the most part, the microscopic appearance of these cases were similar. All

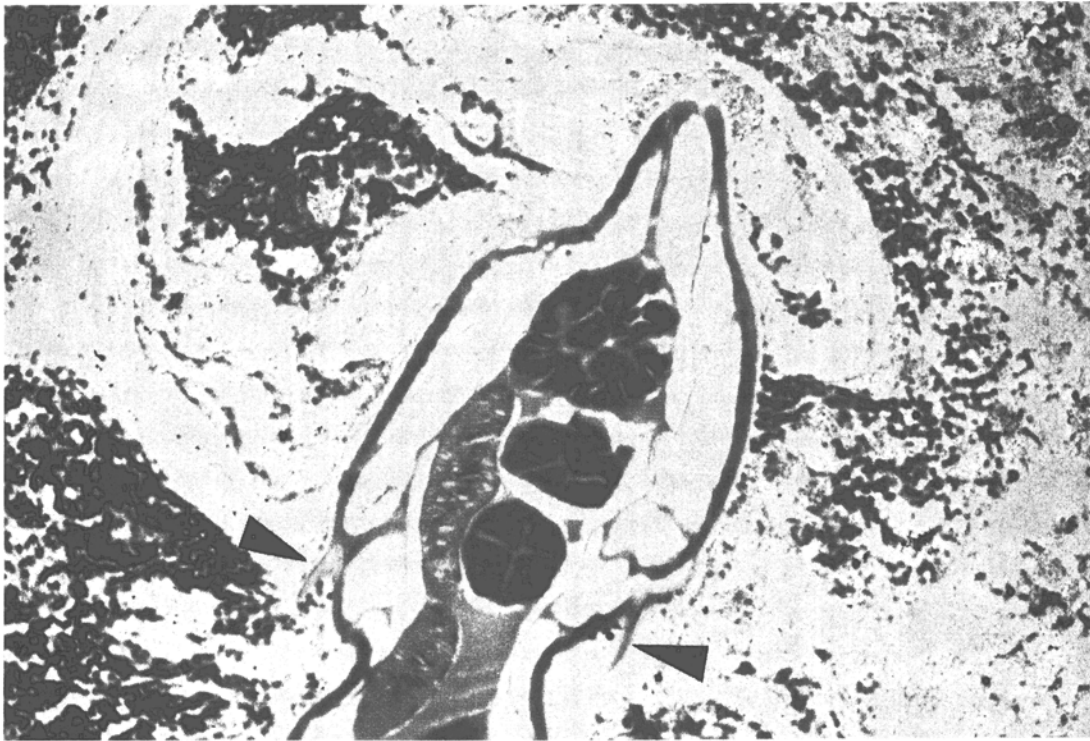


**Fig. 3 :** Healed granuloma showing central hyalinized healed tissue (arrow) (X 200)

granulomas as described above were in the submucosa adjacent to the muscular layer. In the other areas, the eosinophilic infiltration was diffuse from mucosa to subserosa with varying mild to marked in intensity. Only one case (case 8) had multiple hyalinized healed granuloma. In the presence of acute appendicitis, the granulomas were located mainly in the different area from the mucosal ulcer and neutrophilic aggregates, although occasionally they could be identified close to or abutting them. No other significant difference was found between acute and non - acute appendicitis groups.

Six cases of Eab exhibited intense eosinophilic aggregate in submucosa. Mild eosinophilic infiltration in the appendiceal wall was noted. Similar appearances were obvious in five Eab cases of acute appendicitis group. It is noteworthy that the locations of Eab were not coincide with that of the mucosal ulcer and neutrophilic infiltration. Mild to moderate eosinophilic infiltration in the appendiceal wall was apparent.

*Enterobius vermicularis* larvae with characteristic lateral cuticular alae<sup>7</sup> were all situated intraluminally (fig. 4), with three cases in non - acute appendicitis group, one of which (case 3, table 2) had endometriosis of the ovary and four cases in acute appendicitis group. The former had mild to moderate eosinophilic infiltration in the mucosa. The latter had only mild degree in infiltration.



**Fig. 4 :** *Enterobius vermicularis* larva with characteristic lateral cuticular alae (arrow) (X 100)

*Taenia* ova recognized by its spherical thick - walled pale buff to walnut - brown in color<sup>8</sup> (fig. 5) were found intraluminally mixed with food particles, debris and neutrophils. Three cases were present in non - acute appendicitis group (cases 4 - 6, table 2), one with mild mucosal eosinophilic infiltration, one with many eosinophils in the submucosa and muscular layer. Case 6 demonstrated both *Taenia* body and ova in the lumen with moderate increased eosinophils in the mucosa. *Taenia* ova were noted only one case in acute appendicitis group with mild increased eosinophils in the mucosa.

### Discussions

Accentuated amount of eosinophils of appendix in the form of eosinophilic abscess and granulomas have been described in various conditions as mentioned above and even in acute appendicitis, increased amount of eosinophils can be detected<sup>9, 10</sup>. Moreover it is commonly known that eosinophils are generally disclosed in hypersensitivity disorder and parasitic infestation.

Only two genera of parasites, i.e. *Enterobius* and *Taenia* are discovered in this study. Both are in the lumen and merely mildly to moderately increased amount of