

## A SHORT SURVEY ON INCIDENCE OF APPENDICITIS IN BASRAH PROVINCE

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### ABSTRACT

Total of (100) cases of males and females in ages ranged between (15-50) years old which were suffering from appendicitis were examined their appendix histopathology after surgery operation in different localities in Basrah province- southern Iraq.

The histopathological lesions of the reported cases showed varying degrees of acute to sub acute appendicitis with infiltration of neutrophils mainly in acute cases especially in lamina propria to mixed inflammatory cells of neutrophilic and mononuclear cells with or without association with prominent lymphoid follicles. The inflammation mostly started in the lamina propria, in some cases the inflammation extends in submucosa, muscularis externa and even serosa. Some cases showed ulceration of the lining mucosal epithelium of appendix, cases of ulceration in some extend to muscularis externa, even serosa of appendicitis, while, few cases showed evidence of perforation with peritonitis.

Finally, cases of ulcerate appendicitis, also showed oxidative inflammatory materials in human, and areas of edema in muscularis externa were seen in occasional cases. By the other hand no mortalities were reported in the present survey.

**KEYWORDS:** Appendicitis, Peritonitis, Basrah Province, Edema, Inflammatory Cells

### INTRODUCTION

Appendicitis is the term which means inflammation of the vermiform appendix, and in human this vermiform appendix has no known function till now. But histologically it is rich in lymphoid tissue that gradually atrophies with advancing age. Furthermore, with an abdominal condition which is usually acute and potentially dangerous and in many cases, its cause an unknown although various factors which contribute to its development have been identified (Schrock *et al.*, 1993).

Acute appendicitis is the most common abdominal surgical emergency, apart from trauma. And it may occur at any age, affecting males more often than females, but the majority of patients are between 10 and 40 years old. Typically the symptoms in patient with has central abdominal pain which may be associated with loss of appetite, nausea and/or vomiting, mild fever and sometime leucocytosis. After a few hours pain is felt in the right lower abdomen. This classical presentation is more often absent than present, due principally to variations in the position of the appendix within the abdomen, so that appendicitis may be very difficult to diagnose. A consequence is that, at appendectomy, even highly competent surgeons find an apparently normal appendix in about 20% of cases. However, the risk of operation is

outweighed by that of morbidity associated with the possible complications of untreated appendicitis. Sometimes appendicitis resolves without treatment, and may then be referred to as sub acute appendicitis, but more often develops into an abdominal emergency requiring operation. Recurrent low-grade appendicitis is sometimes called chronic appendicitis, but the existence of chronic appendicitis as a separate entity is very doubtful.

The most frequent complication of acute appendicitis is perforation of the appendix, causing peritonitis. This may become localised, forming an appendix abscess (not always in the same part of the abdomen), or generalised which is more serious ( Wang *et al.*, 1996).

Woolf, (1998) noticed that appendicitis is far more common among Europeans, Americans and Australasians than in Asians, Africans and Polynesians, and he related that from the latter races who emigrate to westernised countries appear to acquire the local susceptibility. This, and increasing incidence in parts of Africa, suggests that a lower-fiber diet is a factor but the dietary fiber theory is seriously challenged. The declining incidence of the disease is not paralleled by an increase in the consumption of fiber in populations. Some studies have shown increased frequency of appendicitis among immediate family members, suggesting that a genetic factor may play a part in some cases.

Rhodas *et al.*, (1970) noticed that appendicitis is seen in both the old and young ages, it is seen most frequently in patients between the ages of 10 and 20 and it is probably still the most frequent inflammatory surgical condition arising in the right lower quadrant in any decade of life

It seems that obstruction of the appendicular lumen is involved in many cases of appendicitis (Anderson, 1989). The obstructing agent is usually the presence of a concretion (Faecolith), a foreign body, or a round worm or thread-worms, or rarely a tumor in the lumen which may predispose it to perforation, because the swollen wall becomes stretched over the concretion (Anderson, 1989). Worms like *Oxyuria vermicularis* and other intestinal parasites can injure the appendicular membrane and occasionally block its lumen (Hardingrains, and Ritchie, 1986).

## AIM OF STUDY

The aim of the study was a survey of incidental cases of appendicitis to shade light mostly on the histopathological lesions with or without perforation and to study in detail the severity of the lesion, also varying grades of lesion and repair, and to complete the past study about appendicitis.

## MATERIALS AND METHODS

### Samples Collection

A tissue of appendix with totally (100) cases were collected from patients with 15-50 years old entering hospital suffering from a strong pain of abdomen and after diagnoses by surgical record an appendix inflammation, at General Hospitals in Basrah city and after surgical operation has been performed by the surgeons. The tissue specimens were collected in clean vials with 10% formal saline solution. The samples were obtained by informed consent of the patients involved in this study and the permission to the effect was obtained from the ethical committee.

### Histopathology

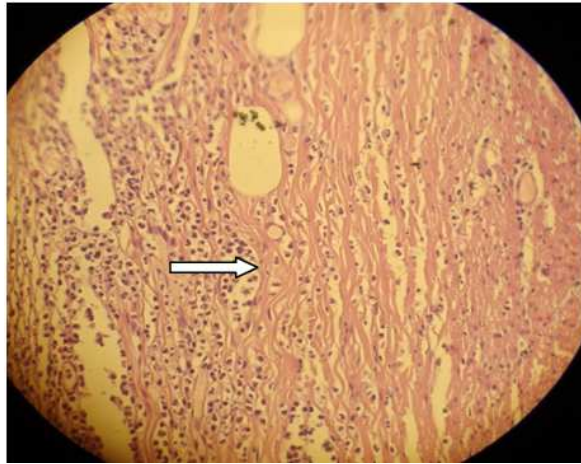
The appendix specimens were processed for histopathological studies as described by the method of Luna (1968). The prepared slides were stained with Haematoxyline and Eosin and examined under the light microscope.

## RESULTS

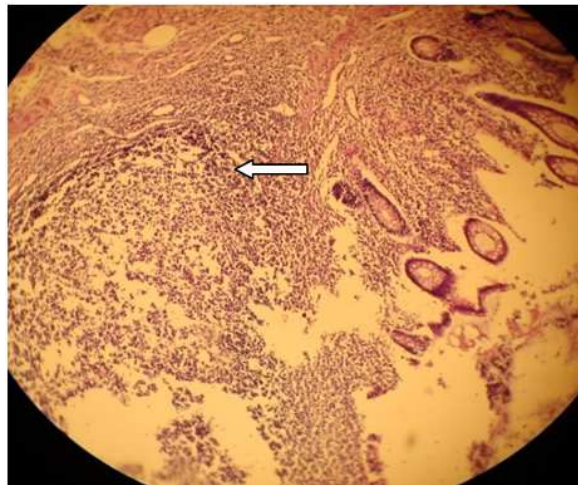
The histopathological results for appendix section showed: an ulceration and infiltration of inflammatory cells, mostly neutrophilic in lamina propria and in dilated mucous glands, also presence of prominent lymphoid follicles (Figure 1). While, in Figure (2) Note infiltration of mixed inflammatory cells in lamina propria, sub mucosa and muscularis externa. A suppurative inflammation noticed in appendix at (Figure 3). While, (Figure 4) record a heavy infiltration of mixed inflammatory cells in lamina propria, also prominent mucous glands with hypertrophic mucous epithelium. In Figure (5) Note inflammatory cells in muscularis externa and serosa with dilated lymphatic vessels. A minimal infiltration of mixed inflammatory cells in lamina propria, note, prominent mucous glands in lamina propria with dilation and hypertrophic epithelium (Figure 6). In Figure (7)) the field with heavy infiltration of inflammatory cells in lamina propria and dilated mucous glands, while, an erosion of epithelial lining with presence of infiltration of inflammatory cells in lamina propria also interstitial edema in muscularis externa found in (Figures 8; 9 ; 10 and 11). In Figure (12) Showing erosion of mucosal epithelial lining, heavy infiltration of inflammatory cells in lamina propria, also prominent lymphoid follicle. While, Figures (13 and 14) note ulceration of the mucosal epithelial lining, infiltration of inflammatory cells in muscularis externa and serosa. An evidence of peritonitis with infiltration of inflammatory cells in serosa found in (Figure 15), but, Figure (16) Note severe peritonitis with heavy infiltration of inflammatory cells. An ulcerated mucosal epithelial with heavy infiltration of mixed inflammatory cells in lamina propria with prominent lymphoid follicles. By the other hand, Figure (17) Showed ulcerated muscularis epithelial, inflammatory secretion in lumen, heavy infiltration of mixed inflammatory cells in lamina propria with prominent lymphoid follicles. But Figure (18) Note evidence of ulceration and edema in muscular wall, while, (Figures 19 and 20) showed infiltration of inflammatory cells in muscularis wall and prominent adipose tissue in serosa. Figures (21 and 22) record infiltration of inflammatory cells in muscularis externa and prominent adipose tissue in serosa partly with inflammation. An ulceration of mucous epithelium, inflammation of lamina propria and prominent lymphoid tissue in lamina propria with extension of inflammation in muscularis externa wall found in (Figure 23), while, Figure (24) Record high magnification of muscular showing moderate infiltration of inflammatory cells in muscularis wall. A section of appendicitis showing ulceration, inflammatory cells adheres in lumen and prominent lymphoid follicles found in (Figure 25). A high magnify of ulceration inflammatory of lamina propria prominent lymphoid follicles (Figure 26). An infiltration of inflammatory in muscularis wall found in (Figure 27), while, Figure (28) Note heavy infiltration of inflammatory cells in lamina propria, muscularis externa and serosa.



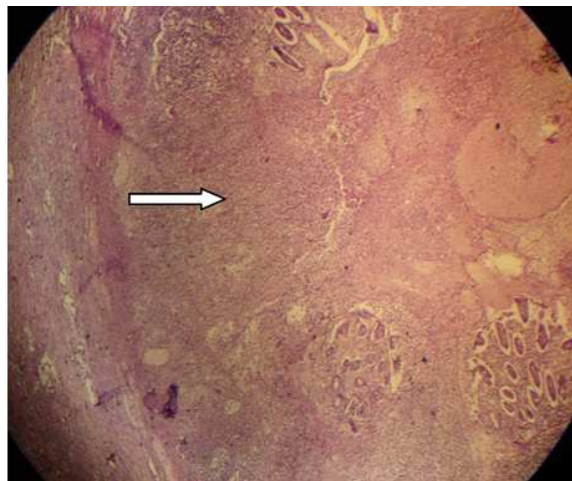
**Figure 1: Section of Appendicitis with Ulceration and Infiltration of Inflammatory Cells. E & H. 10X**



**Figure 2: Section of Appendicitis Note Infiltration of Mixed Inflammatory Cells in All Layers. E&H. 4X**

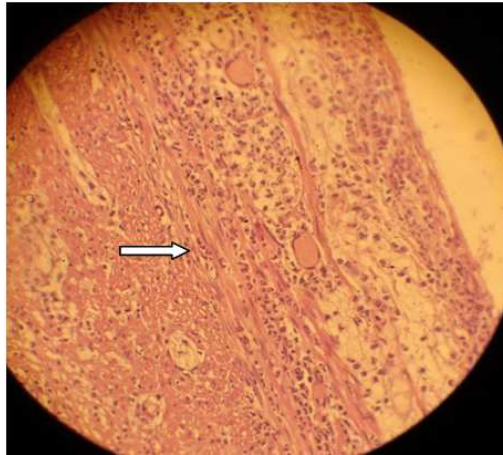


**Figure 3: Section of Appendicitis with Supportive Inflammation. E& H. 10X**

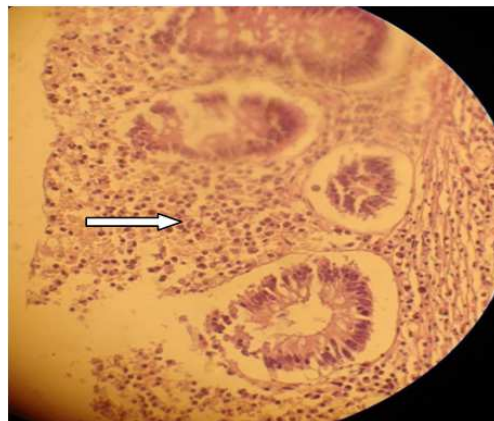


**Figure 4: Section of Appendicitis Note Heavy Infiltration of Mixed Inflammatory Cells in Lamina Propria E&H. 10X**

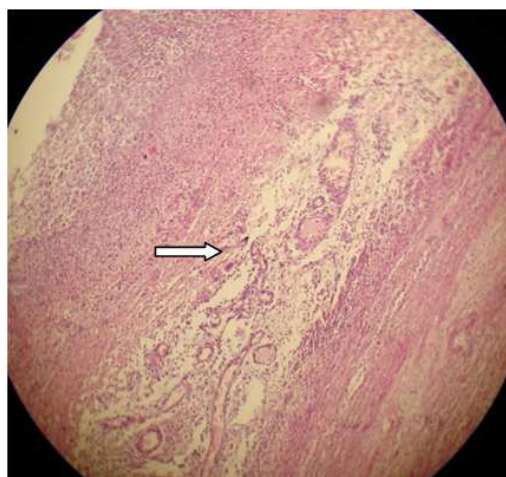




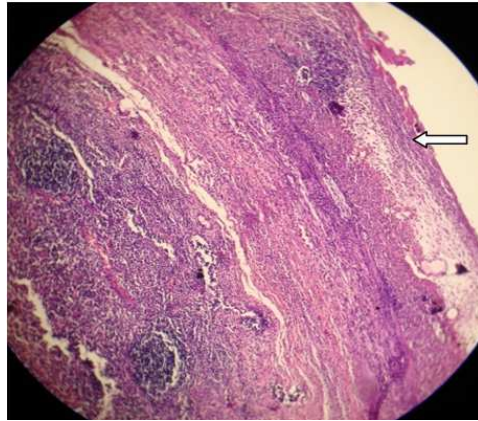
**Figure 5: Section of Appendicitis with Infiltration Cells in Muscularis Externa with Dilated Lymphatic Vessels E&H. 10X**



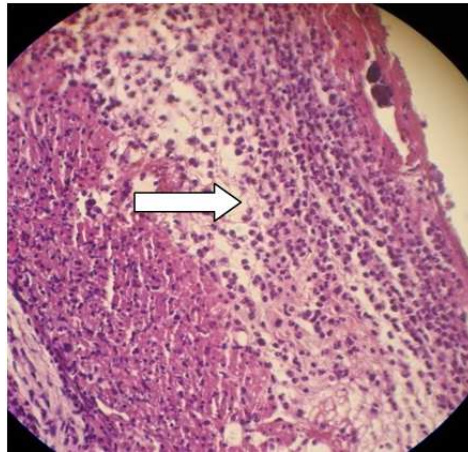
**Figure 6: Section of Appendicitis with Minimal Infiltration of Mixed Inflammatory Cells in Lamina Propria E&H. 10X**



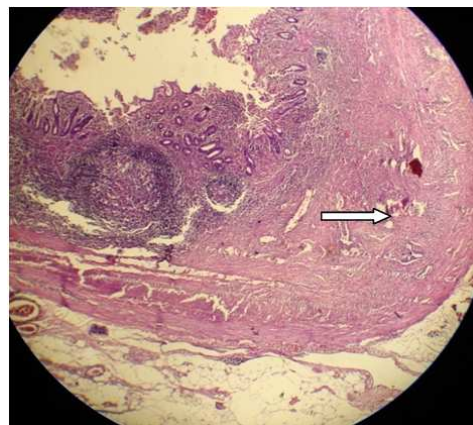
**Figure 7: Section of Appendicitis with Heavy Infiltration of Inflammatory Cells in Lamina Propria and Dilated Mucous Glands E&H. 10X**



**Figure 8: Section of Appendicitis Note Erosion of Epithelial Lining and Present of Infiltration of Inflammatory Cells in Lamina Propria and Serosa E&H. 10X**



**Figure 9: Section of Appendicitis Note Interstitial Edema in Muscularis Externa. E&H. 20X**



**Figure 10: Section of Appendicitis Note Interstitial Edema in Muscularis Externa. E&H. 10X**

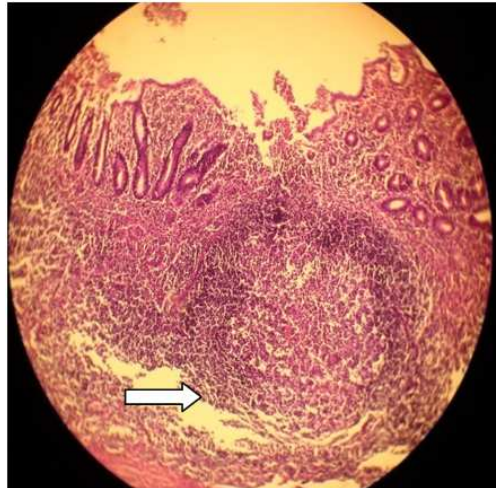


Figure 11: Section of Appendicitis Note Edema in Muscularis Externa. E&H. 20X

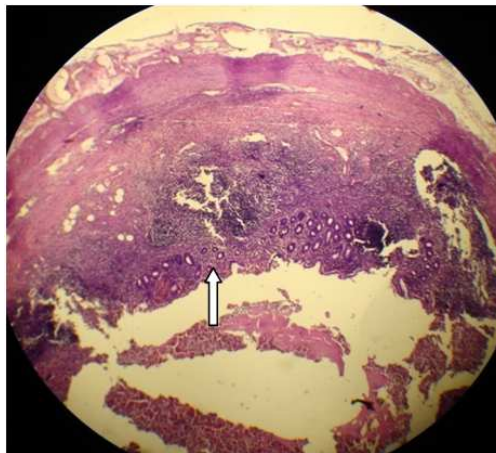


Figure 12: Section of Appendicitis Note Erosion of Mucosal Epithelial Lining and Heavy Infiltration in Inflammatory Cells in Lamina Propria E&H. 10X

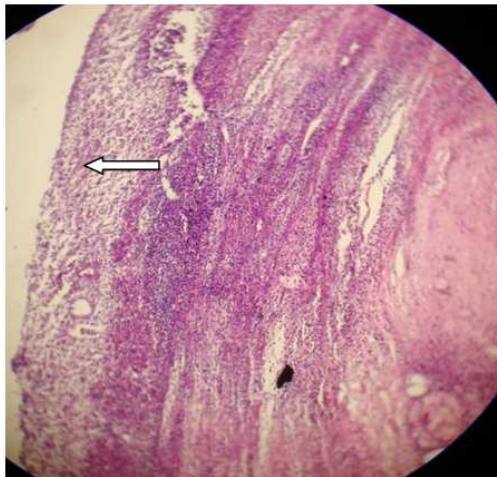


Figure 13: Section of Appendicitis Note Ulceration of the Muscular Epithelial Lining. E&H. 10X

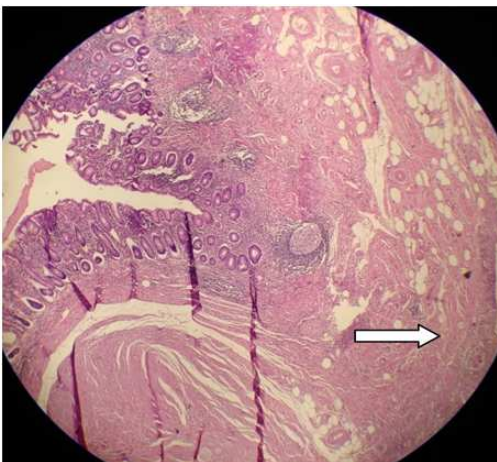




**Figure 14: Section of Appendicitis Note Infiltration of Inflammatory Cells at Muscularis Externa and Serosa E&H 10X**

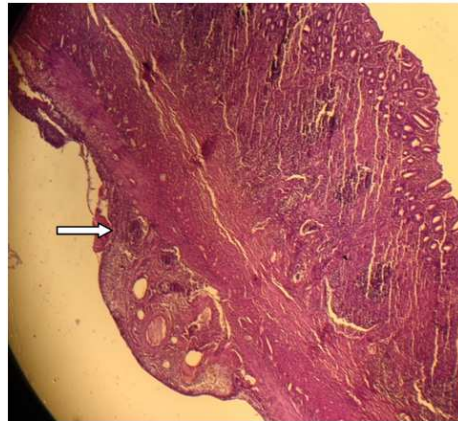


**Figure 15: Section of Appendicitis Showing Evidence of Peritonitis and Infiltration of Inflammatory Cells in Serosa E&H. 10X**



**Figure 16: Section of Appendicitis Showing Severe Peritonitis with Heavy Infiltration of Inflammatory Cells E&H. 10X.**

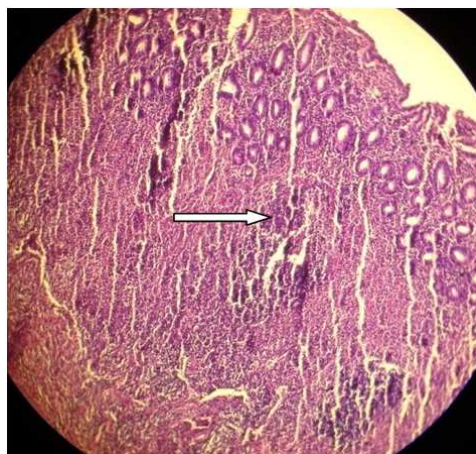




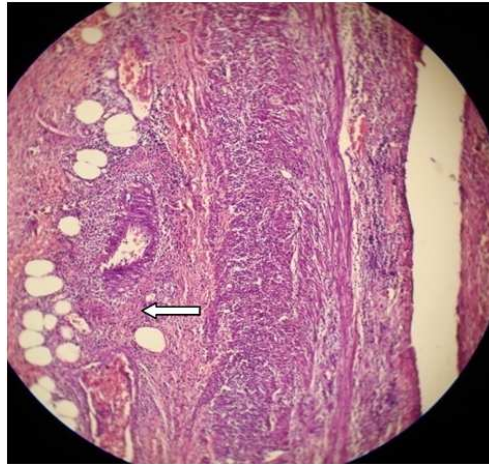
**Figure 17: Section of Appendicitis Note Ulcerated Muscularis Epithelial and Heavy Infiltration of Mixed Inflammatory Cells E&H. 10X**



**Figure 18: Section of Appendicitis Showing Evidence of Ulceration and Edema in Muscularis Wall E&H. 10X**



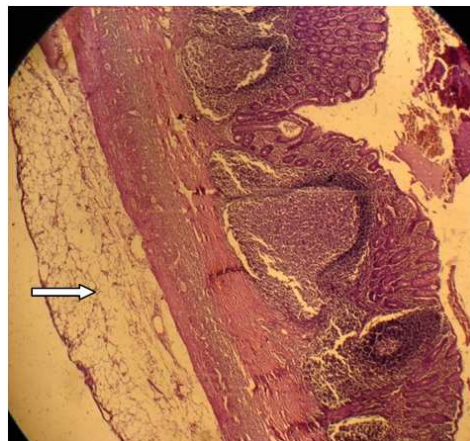
**Figure 19: Section of Appendicitis with Infiltration of Inflammatory Cells in Muscularis Wall E&H. 10X**



**Figure 20: Section of Appendicitis Showed Infiltration of Inflammatory Cells in Muscularis Wall and Prominent Adipose Tissue in Serosa E&H 10X**

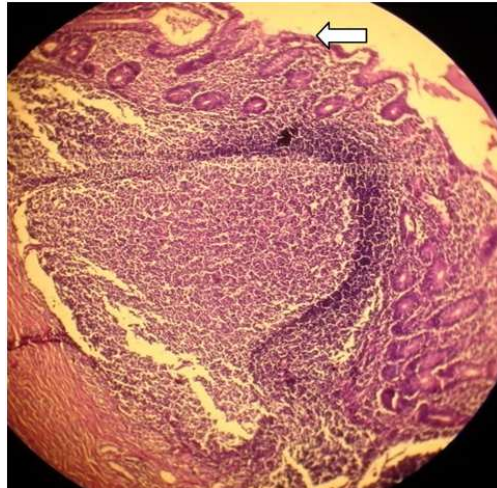


**Figure 21: Section of Appendicitis with Infiltration of Inflammatory Cells in Muscularis Wall E&H. 10X**

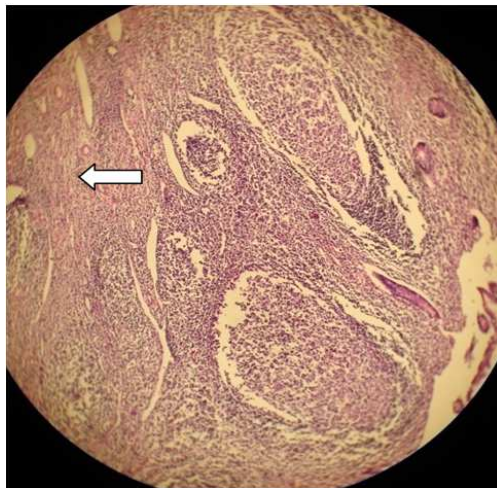


**Figure 22: Section of Appendicitis Record Infiltration of Inflammatory Cells in Muscularis Externa and Prominent Adipose Tissue in Serosa Partly With Inflammation E&H. 10X**

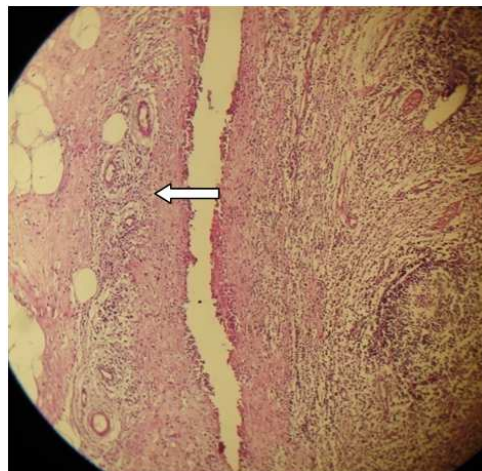




**Figure 23: Section of Appendicitis with Ulceration of Muscularis Epithelium and Inflammatory Cells in Lamina Properia E&H. 10X**

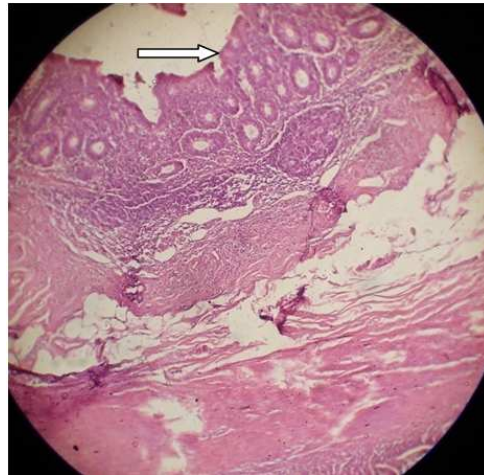


**Figure 24: Section of Appendicitis High Magnification of Muscular Showing Moderate Infiltration of Inflammatory Cells in Muscularis Wall E&H. 10X**



**Figure 25: Section of Appendicitis with Ulceration, Inflammatory Cells Adheres in Lumen and Prominent Lymphoid Follicles E&H 10X**

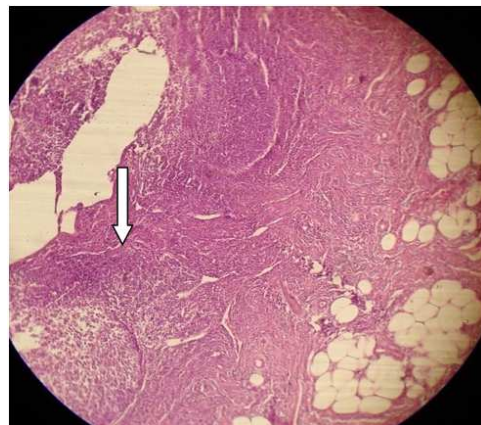




**Figure 26: Section of Appendicitis with a High Magnify of Ulceration Inflammatory of Lamina Propria Prominently Lymphoid Follicles E&H. 10X**



**Figure 27: Section of Appendicitis with an Infiltration of Inflammatory in Muscularis Wall .E&H. 10X**



**Figure 28: Section of Appendicitis with Heavy Infiltration of Inflammatory Cells in Lamina Propria and Muscularis Externa and Serosa E&H. 10X**

## DISCUSSIONS

A survey on incidence of appendicitis in Basrah province- southern Iraq with histopathological study was done under this study.

The histopathology of appendicitis in the present survey showed the inflammatory lesion varied from just inflammation of appendix to others with erosion or ulceration of the mucous epithelial lining, some the inflammatory lesions extend deep to involve muscularis externa and/ or serosa with or without perforation which could result in peritonitis. All the above varying lesions were supported by light microscopic figures as in those in figure 1 up to figure 28.

As from the histopathology study of the present paper showed the various severity of the condition as it was reported by Schrock *ET. Al* (1993). As the study found some cases with peritonitis, which could has associated with perforation thrombosis or bacterimia as it was reported by (Wang *et.al.*, 1996).

The most frequent cause of acute appendicitis was occasion of the lumen of the appendix usually stool or fecal impaction or concretion and rarely a foreign body such as seed and this is agree with ( Rhodas *et. al.*, 1970). Furthermore, the present survey showed that the cases of appendicitis occurring in young of 15 years old up to 50 years old, but still the most frequent inflammatory surgical condition arising in the right lower quadration an of decade of life as reported by (Rhodas *et. al.*, 1970).

Generally, Anderson, (1989) reported that the incidence of appendicitis were reported in Britain and North America but now because of changes of diets and the adaptation of great Britain and American dietary cases occurring in as some of African countries like the present cases in Basrah province- south of Iraq as it was.

The common cases of appendicitis as in the above reported cases in the present paper could be with intestinal parasites causing inflammation and swelling as it was reported by (Anderson, 1989), and worms like pinworms and other intestinal parasites come injure the appendicular membrane and occasionally put ova at the lumen and cause inflammation as suggested by (Hardingrains, and Ritchie, 1986).

The current study of the histopathological lesions of appendicitis in it is various forms reported in the present cases as to complete the past study by ( Al-Azizz *et. al.*, 2011) to make an optical view of the what was cause appendicitis and must remove by surgey.

## CONCLUSIONS

In conclusion, appendicitis can be done in different ages groups and both gender with different resonses could be with past case history with bacterial or parasitic infection and with clear histopathological changes but the final cannot treated and must be done an surgical operation.

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