

# Appendicitis Epiploicae: an Important Differential Diagnosis in Patients Presenting with Acute Abdomen

Gaurav Thami<sup>1</sup>, Devender Kaur<sup>2</sup>, Nivesh Agrawal<sup>3</sup>, Deepak Kumar Singla<sup>4</sup>

## ABSTRACT

**Introduction:** Appendicitis epiploicae is an ischaemic infarction precipitated by either torsion or spontaneous thrombosis of central draining vein of epiploic appendage. With the advent of modern diagnostic imaging modalities, this clinical entity is being recognized more often in patients presenting as acute abdomen. The clinical importance of appendicitis epiploicae lies in the fact that it may mimic acute appendicitis on the right side and sigmoid diverticulitis on the left side. Further, the disease is self limiting and resolves spontaneously with conservative management. A correct diagnosis of appendicitis epiploicae enables a conservative management thus avoiding unnecessary surgical intervention and additional treatment costs.

**Material and methods:** A retrospective review of case records of all cases diagnosed as appendicitis epiploicae was done in a tertiary care centre of North India over a period of two years (2014-2016) where detailed analysis of the hospital records of all diagnosed cases of appendicitis epiploicae in the department of surgery was done. Collection of data was done by using a structured predesigned proforma and data analysis and interpretation was done using descriptive and inferential statistics.

**Results:** Of the total 15 patients, there were 5 male and 10 female patients respectively. The majority of patients were in the age group of 41-50 years (total 7 patients). Of the total 15 patients, 8 (48%) patients had a BMI 30-34Kg/m<sup>2</sup> while 3 male patients and 4 female patients had BMI of 25-29 Kg/m<sup>2</sup> and <25 Kg/m<sup>2</sup> respectively.

**Conclusion:** All the patients presenting with an acute abdomen along with localized tenderness and without associated symptoms or leukocytosis should be critically evaluated for appendicitis epiploicae and with the help of an abdominal computed tomography, correct diagnosis of appendicitis epiploicae before surgery can be made avoiding unnecessary surgical intervention.

**Keywords:** Appendicitis Epiploicae, Ischaemic Infarction, Sigmoid Diverticulitis, Acute Appendicitis.

## INTRODUCTION

Epiploic appendages are the fatty pedunculated structures present on the external aspect of colon varying in number between 50-100. They extend from the caecum to the rectosigmoid junction with relative sparing of rectum. These are covered by the visceral peritoneum, supplied by one or two end arteries branching from vasa recta longa of colon and drained by tortuous vein passing through its narrow pedicle. Owing to their limited blood supply, pedunculated shape and excessive motility; these structures are prone to undergo torsion and ischaemic infarction<sup>1</sup>. The importance

of this clinical entity lies in the fact that it constitutes an important differential diagnosis in patients presenting with acute abdomen.

## MATERIAL AND METHODS

A retrospective review of all cases diagnosed as appendicitis epiploicae was done in Department of General Surgery, BPS Government Medical College, Khanpur Kalan Sonapat over a period of two years (2014-2016). A total of 15 cases were diagnosed as appendicitis epiploicae in the department of General Surgery. All patients underwent routine haematological and biochemical investigations as well as ultrasonography abdomen and CECT whole abdomen. The hospital records of these patients were reviewed, and a detailed analysis of the clinical notes of the resident doctors, consultants and nurses was made. Collection of data was done by using a structured predesigned proforma containing a checklist including variables like patients demographic profile, relevant history, clinical findings, biochemical and radiological investigations, intraoperative details, post-operative complications (if operated) and duration of total hospital stay. Data collected was entered in the Excel 2007 and data analysis and interpretation was done using descriptive and inferential statistics.

## RESULTS

Of the total 15 patients, there were 5 male and 10 female patients respectively. The majority of patients were in the age group of 41-50 years (total 7 patients).

Of the total 15 patients, 8 (48%) patients had a BMI 30-34Kg/m<sup>2</sup> while 3 male patients and 4 female patients had BMI of 25-29 Kg/m<sup>2</sup> and <25 Kg/m<sup>2</sup> respectively.

All 15 (100%) patients presented with sudden onset sharp pain either on the right or left side of abdomen. With regard

<sup>1</sup>Associate Professor, Department of General Surgery, Kalpana Chawla Government Medical College, Karnal, Haryana, <sup>2</sup>Ex-Assistant Professor, Department of Radiology, BPS GMC, Khanpur Kalan, Sonapat Haryana, <sup>3</sup>Professor and Head, Department of General Surgery, Kalpana Chawla Government Medical College, Karnal, Haryana, <sup>4</sup>Associate Professor, Department of General Surgery, Kalpana Chawla Government Medical College, Karnal, Haryana, India

**Corresponding author:** Dr Deepak Kumar Singla, Associate Professor, Department of General Surgery, Kalpana Chawla Government Medical College, Karnal, Haryana, India

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to site of pain, 10 (60%) patients had pain in the left iliac fossa and 5 (40%) patients had pain in the right iliac fossa. Local examination of abdomen revealed tenderness in 12 (72%) patients. Guarding was present in 7 (42%) patients. A vague ill defined mass was palpable in 1 female patient only. Of the total 15 patients, 12 patients presented with the findings of Oval/Round noncompressible hyperechoic mass with a hypoechoic rim directly under the site of tenderness while none of them had flow on colour Doppler USG as depicted in table no. 4.

Of the total 15 patients, ALL patients had the radiological finding of Focal area of fat stranding on CECT whole abdomen while variable number of them had other findings like a fluid cavity, hyperdense peripheral halo and swirling of omental vessels in omental torsion as depicted in table no. 5.

## DISCUSSION

Appendicitis epiploicae is an ischaemic infarction precipitated by either torsion or spontaneous thrombosis

of central draining vein of epiploic appendage<sup>1</sup>. Epiploic appendices are the pedunculated structures that are arranged in two longitudinal rows adjacent to anterior and posterior taenia on the external serosal surface of colon. This clinical entity is most commonly seen in male patients in the age group of 40-50 years.<sup>2,3</sup> Clinically, majority of patients present with sudden onset pain in the left iliac fossa. Local examination of the abdomen reveals tenderness and muscle guarding at the site of maximum pain. Most of the patients with Appendicitis epiploicae have normal white blood cell count. The most common sites of involvement in decreasing order of frequency are rectosigmoid junction, caecum, transverse colon and descending colon.<sup>4</sup>

Acute appendicitis epiploicae is subclassified into primary and secondary forms. Primary Appendicitis epiploicae represents ischaemic infarction of an epiploic appendix which occurs when an epiploic appendix torses or when there is spontaneous thrombosis of its central draining vein resulting in a focal inflammatory process.

In Secondary epiploic Appendicitis, the epiploic appendix is inflamed secondary to another disease process such as diverticulitis, acute appendicitis<sup>3</sup>. oval noncompressible hyperechoic mass with a subtle hypoechoic rim directly under the site of tenderness with no color Doppler flow

THE diagnosis of this rare clinical entity can be made on ultrasound or Computed Tomography of abdomen.<sup>7</sup> A noncompressible hyperechoic small ovoid or round solid mass of adipose tissue is seen between the colon and the abdominal wall in the anterior or anterolateral compartment of the abdomen at the site of maximum tenderness. A mass effect is seen either on the adjacent bowel or in the anterior parietal peritoneum. The lesion is adherent to the colonic wall, is frequently surrounded by a hypoechoic border and does not have central blood flow on Doppler ultrasound<sup>8</sup>. On CT, an infarcted or inflamed epiploic appendage appears as a 1–4 cm ovoid pericolic lesion with fat density surrounded by inflammatory changes and abuts the anterior colonic wall. A 2–3 mm hyperdense rim surrounding the ovoid mass on CT (hyperattenuating ring sign) represents the inflamed visceral peritoneal covering of the epiploic appendage and is diagnostic of primary epiploic appendicitis<sup>9,10,11</sup>

The majority of patients are treated conservatively. With conservative management, patients' symptoms mostly

Age group (years)	Male	Female
21-30	-	-
31-40	1	3
41-50	2	5
51-60	1	2
Total	4 (24%)	11(76%)

**Table-1:** Depicting age and sex distribution.

BMI(Kg/m <sup>2</sup> )	Male	Female
<25	1	2
25-29	1	3
30-34	3	5
Total	5	10

**Table-2:** Depicting relationship with BMI

Clinical presentation	Male	Female
Pain	5	10
Fever	-	2
Tenderness	4	8
Guarding	2	5
Abdominal mass	-	1

**Table-3:** Depicting the clinical presentation.

	Yes	No
Oval/Round noncompressible hyperechoic mass	12	3
hypoechoic rim directly under the site of tenderness	12	3
Color Doppler flow	0	15

**Table-4:** Depicting USG features.

	Yes	No
Focal area of fat stranding	15	0
A fluid cavity	12	3
Hyperdense peripheral halo and	10	5
Swirling of omental vessels in omental torsion	11	4

**Table-5:** Depicting CT features.

alleviate between 1 weeks and 4 weeks.<sup>12</sup> Most of the surgical literature underlines the benign course of disease and favors a conservative therapy regimen. This is with analgesics with or without antibiotics. However, we have observed that there is a tendency of recurrence in conservatively treated patients. Surgical therapy is favorable to prevent recurrence, inflammation induced adhesions and other less common complication and surgical exploration via a laparoscopic approach with simple ligation and excision of the inflamed appendages is the preferred approach<sup>13</sup>. Unnecessary surgical intervention should be avoided and side effects, such as severe bleeding, organ injury, and allergic reaction to anesthetic drugs, should be discussed with patients. In addition, conservative medical treatment of PAE is much more cost-effective than surgical intervention.<sup>13</sup>

Limitation of the study is the small sample size. A final conclusion regarding the best form of therapy cannot be drawn. We propose that a study evaluating a larger number of patients may be of interest to further evaluate this controversy issue.

## CONCLUSION

Surgeons should be aware of this self-limiting disease that mimics many other intra-abdominal acute conditions. An abdominal computed tomography scan has a vital role in correct diagnosis of appendicitis epiploicae before surgery and unnecessary surgical interventions can be avoided. Therefore, it is strongly recommended that various imaging characteristics with clinical features should be taken in to account to identify the subgroup of patients who will benefit from medical management which can avoid unnecessary hospitalization and surgical interventions.

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