

Clinical Case Study in the Incidence and Management of Right Iliac Fossa Mass

H Abu Horairah, PK Baskaran*

Department of General Surgery, Sree Balaji Medical College & Hospital Affiliated to Bharath Institute of Higher Education and Research, Chennai, Tamil Nadu, India

ABSTRACT

Tuberculosis of the gastrointestinal tract presents a common diagnostic and therapeutic problem to a surgeon in most of the developing countries. An inflammatory mass in this region is most associated with an appendicular pathology and rarely inflammatory swelling may arise in connection with suppurating iliac lymph nodes or a psoas abscess. The management of appendicular mass seems to take turn with the availability of better antibiotics, intensive care and anesthesia. In this series ileocaecal tuberculosis formed 18% of cases taken up for study of mass in the right iliac fossa most common only to appendicular mass. To study various diseases which can presents as mass in the right iliac fossa, percentage of various diseases presenting as mass in the right iliac fossa, to analyses the efficiency of current treatment and its prognosis in our setup and follow up the studied cases for further management and to detect complications.

Key words: Clinical case, Tuberculosis, Antibiotics, Anesthesia

HOW TO CITE THIS ARTICLE: H Abu Horairah, PK Baskaran, Clinical Case Study in the Incidence and Management of Right Iliac Fossa Mass, J Res Med Dent Sci, 2021, 9 (5):343-351.

Corresponding author: PK Baskaran

e-mail ✉: baskaran.pk@bharathuniv.ac.in

Received: 24/03/2021

Accepted: 24/05/2021

INTRODUCTION

A mass per abdomen has always been considered to be a temple of wonders or Pandora's magic box.¹ Despite the advancement in the field of diagnosis, the surprises never cease, hence the abdomen has been rightly called temple of surprises. Mass in the right iliac fossa is one of the most common problems faced in surgical practice, which has various differential diagnoses. Most of the cases need surgical intervention and most of them are curable. The varied etiology of these conditions presents a diagnostic challenge to the surgeon, as appropriately said by Sir Hamilton Bailey "A correct diagnosis is the handmaiden of a successful operation".

The mass in the right iliac fossa arises mainly from the appendix, caecum, terminal ileum, lymph nodes, ileopsoas abscess and retroperitoneal connective tissue. An inflammatory mass in this region is most associated with an appendicular pathology and rarely inflammatory swelling may

arise in connection with suppurating iliac lymph nodes or a psoas abscess. The management of appendicular mass seems to take turn with the availability of better antibiotics, intensive care and anesthesia. When the surgeon encounters an unsuspected abscess during appendectomy it is usually best to proceed and remove the appendix. If the abscess is large and further dissection would be hazardous, drainage alone is appropriate. In India, tuberculosis has been reported to be the cause in 3 to 20% of patients with intestinal obstructions. Not infrequently a surgeon encounters a patient seeking consultation regarding the presence of a mass in the abdomen. Sometimes while examining the abdomen the clinician comes across a lump. The diagnosis of an abdominal mass requires skillful experience and mainly depends on clinical examination and investigations. Mass in the right iliac fossa is one of the most common problems faced in surgical practice, which has various differential diagnoses. Most of the cases need surgical intervention and most of them are curable. The purpose of this study was to know the incidence, various modes of presentation, different modalities of diagnosis, treatment and prognosis in our set up, studied to identify factors which can help in better management [1-25].

MATERIALS AND METHODS

The study is a descriptive study of right iliac fossa mass. This study involves a single group of patients with right iliac fossa mass admitted in SBMCH between the period of March 2017-October 2018.

Inclusion criteria

All cases of right iliac fossa mass admitted in SBMCH between the period from March 2017 -October 2018.

Exclusion criteria

All the patients with right iliac fossa mass leaving before the treatment is complete.

Methodology

Patients with right iliac fossa mass admitted and treated in the surgical ward in SBMCH for a period of from March 2017-October 2018.

Diagnosis is made by a combination of clinical and radiologically, Demographic data is collected. Routine blood investigations and a thorough clinical examination of the site is done.

Diagnosis is made clinically, paraclinical and radiologically. Treatment includes hemodynamic stabilization, antibiotics, and management includes either conservative or surgical management.

RESULTS

This study of 50 cases of mass in the right iliac fossa was done over a period from March 2016 to October 2018. According to this study of 50 cases more than 40% of cases were related to appendicular pathology either in the form of appendicular mass or appendicular abscess. There were about 9 cases of ileocaecal tuberculosis, and 10 cases of carcinoma caecum and 2 cases were psoas abscess (Table 1).

Age incidence

In this study, youngest patient was of age 25 years, who presented with appendicular mass

and the oldest was 82 years of age admitted with and diagnosed Appendicular abscess. In this study appendicular mass manifested most in 6th decade and followed by 4th and 5th Ileocaecal tuberculosis was common in the middle age group (i. e., 3rd and 4th decade) covering about 77% of cases. Carcinoma caecum was common in older age group (75%) (Table 2 and Figure 1).

Sex incidence

Male: Female ratio – 1:2.6 In the present study, appendicular mass (73%), appendicular abscess (67%) were common in females.

In ileocaecal tuberculosis incidence in males was almost 60%.

In carcinoma of caecum the incidence again was more in females (1:7) (Table 3 and Figure 2).

In present study patients with appendicular mass presented with pain initially around umbilicus which later shifted to right iliac fossa. 95% of cases of appendicular mass presented within 30 days. Pain was colicky in nature and associated with vomiting. Some patients of ileocaecal tuberculosis presented with colicky abdominal pain and fullness in right iliac fossa. Some of them complained of constant dull pain ill right iliac fossa interspersed with colicky abdominal pain 2-8 hours after taking food. Pain was relieved usually by-passing stools. In this series 22% cases presented within 1 month, 55% cases presented between 1-3 months and another 22% presented after 6 months (Table 4 and Figure 3).

In this study of 50 cases, 21 cases were managed conservatively, and 29 cases were managed surgically. 12 out of 20 cases of appendicular mass were managed conservatively by Oschner Scherren regime and remaining 8 cases was managed surgically. All 9 cases of appendicular abscess and 2 cases of psoas abscess were managed by extraperitoneal drainage. All cases of ileocaecal tuberculosis were managed conservatively (Table 5 and Figure 4).

Table 1: Incidence of various condition.

Sl no	Diagnosis	No. of Cases	Percentage (%)
1	Appendicular Mass	20	40
2	Carcinoma caecum	10	20
3	Ileocaecal Tuberculosis	9	18
4	Appendicular Abscess	9	18
5	Psoas Abscess	2	4

Table 2: Age incidence.

Sl no	Diagnosis	No. of cases	21-30 Years	31-40 years	41-50 years	51-60 years	>60 years
1	Appendicular Mass	20	1	3	3	11	2
2	Carcinoma caecum	10	-	1	4	5	-
3	Ileocaecal Tuberculosis	9	-	4	2	2	1
4	Appendicular Abscess	9	1	-	4	3	1
5	Psoas Abscess	2	-	-	1	1	-

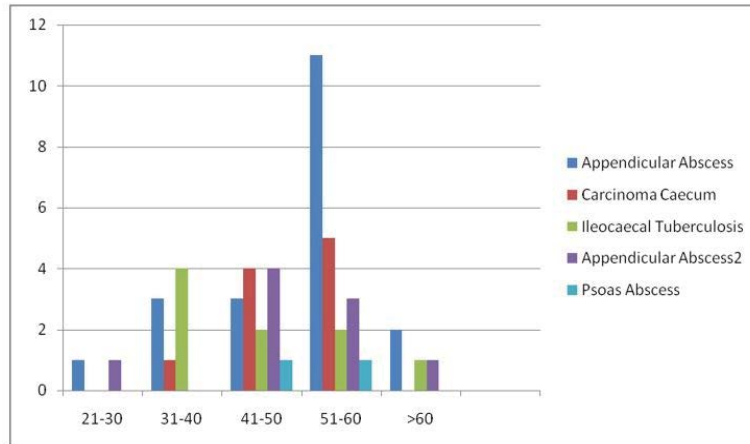


Figure 1: Age incidence.

Table 3: Sex incidence.

Sl no	Diagnosis	Male		Female	
		No	%	No	%
1	Appendicular Mass	5	10	15	30
2	Carcinoma caecum	3	6	7	14
3	Ileocaecal Tuberculosis	6	12	3	6
4	Appendicular Abscess	2	4	7	14
5	Psoas Abscess	-	-	2	4

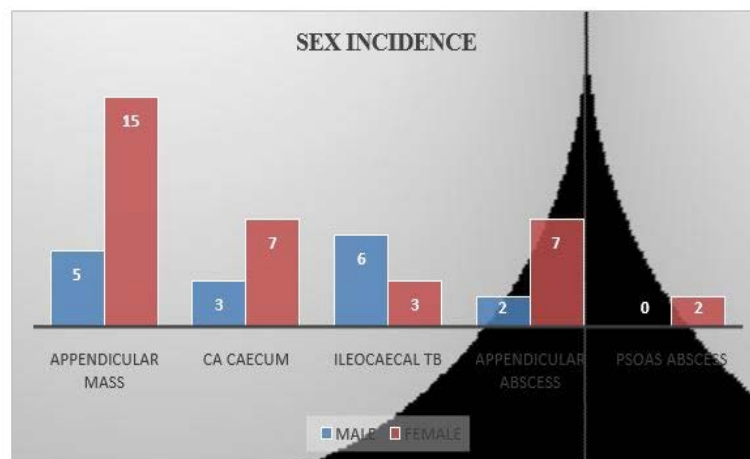


Figure 2: Sex incidence.

Table 4: Duration of symptoms.

Sl no	Diagnosis	No of cases	Duration			
			2-30 Day	1-3 Months	3-6 Months	>6 Months
1	Appendicular Mass	20	18	2	-	-
2	Carcinoma caecum	10	4	5	1	-
3	Ileocaecal Tuberculosis	9	-	1	4	4
4	Appendicular Abscess	9	9	-	-	-
5	Psoas Abscess	2	1	1	-	-

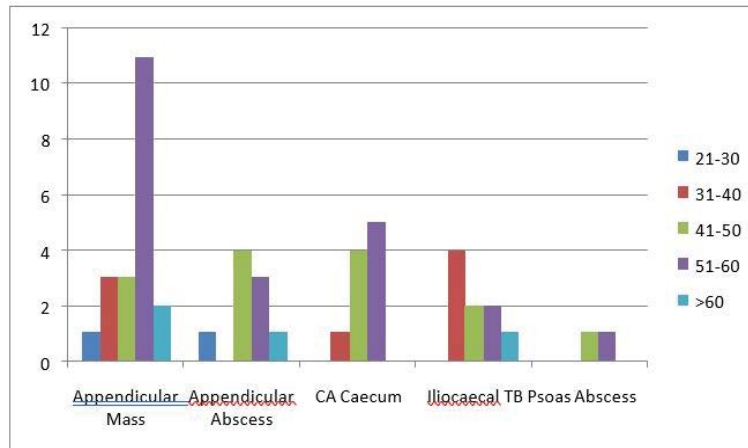


Figure 3: Duration of symptoms.

Table 5: Mode of management.

Sl no	Diagnosis	No of cases	Medical		Surgical	
			No	%	No	%
1	Appendicular Mass	20	12	24	8	16
2	Carcinoma Caecum	10	-	-	10	20
3	Ileocaecal Tuberculosis	9	9	18	-	-
4	Appendicular Abscess	9	-	-	9	18
5	Psoas Abscess	2	-	-	2	4

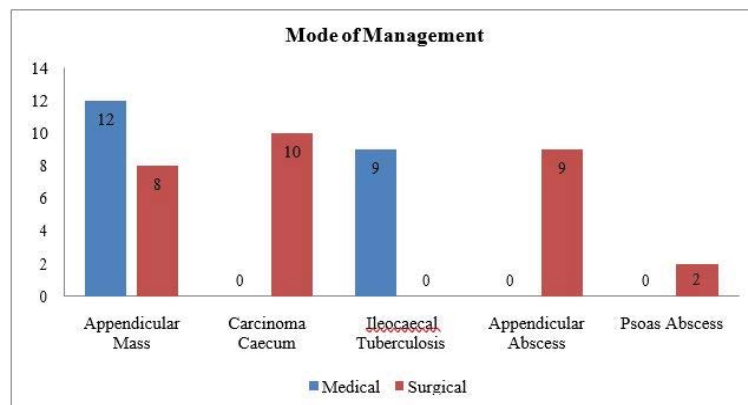


Figure 4: Mode of management.

DISCUSSION

Appendicular mass

This accounts for about 40% of cases of present study. All the patients came to the hospital for pain. They complained of colicky pain, initially around umbilicus which later shifted to right iliac fossa. Some patients had associated vomiting, nausea and anorexia. In present study maximum age incidence was in 6th decade (22%) followed by 4th and 5th decade (6% in each respectively). This was more common in females than males (2.6:1). Only two patients complained of mass in present series. But on examination all cases were found to have mass in the right iliac fossa.

According to Bailey and Love, on the third day (rarely sooner) after the commencement of an attack of acute appendicitis, a tender mass can frequently be felt in the right iliac fossa beneath some rigidity of the overlying musculature, the other quadrants of the abdomen being free from rigidity or tenderness. 3

8 patients out of 20 cases had rigidity and 19 out of 20 cases had tenderness. In present series all patients gave history of pain and vomiting. All patients had mass on palpation which were tender and firm. In present study, 4 of the 20 cases had restricted mobility whereas rest of the cases were fixed.

According to previous studies 55% of his cases experienced febrile episodes with temperature

>101°F.10 In present study 59% of cases presented with fever and in 81 % of cases, Hb % was above 10 gms%. In present series, 60% of patients were treated. Nil by mouth, Ryles tube aspiration, antibiotics and IV fluids.

This decision was based on fact that nature has already localized the lesion and it is unwise to disturb these barriers. Inadvertent surgery at this time is dangerous, difficult and bloody.

Rests of the cases (8) were immediately operated for appendectomy. 10 patients were operated after 6 weeks for interval appendectomy, Interval appendectomy is defined as the time interval between attacks of appendicitis, at present interval appendectomy terminology is removed Erik Skoubo-Kristensen et al says that conservative management of appendicular mass is successful in most cases and complication rates seem lower than with early operative treatment.

Others study says that of 30 patients, 3 needed emergency appendectomy, 2 had elective appendectomy and remaining 83% were managed conservatively.

In present series cases which were managed conservatively were called back for appendectomy 6 weeks later. Specimens of appendix after appendectomy were sent for histopathological examination and all were reported as chronic appendicitis.

Appendicular abscess

9 out 50 patients had appendicular abscess .18% of the present group study. Majority of the cases were in 5th decade and in s males were affected.

All the patients presented within 1 month of symptoms. According to Edward L Bradley III et al, mean age at which appendicular abscess occurred was 40.7 ± 2.7 . 8 Symptoms had been present on an average of 9.2 ± 0.8 days prior to admission.

In present study initially pain was colicky which later changed to pricking/throbbing type. 33% of cases complained of mass per abdomen and mass was tender and soft in consistency. 50% of cases had fever.

According to Hurme T et al, in his study of 147 patients 47% were primarily treated conservatively, of them 9% had to be operated on in acute phase because of worsening of symptom. 16 Rest 53% were operated on

primarily of which 28% had complications. In 31 % of conservatively managed patients - interval appendectomy was done and 12 % were treated conservatively only.

In present study all 9 cases were taken up for immediate extra peritoneal drainage of abscess, which is a preparation for interval appendectomy done after 6 -8 weeks. Interval appendectomy was done in all cases and histopathology report showed chronic appendicitis. According to Edward L Bradley III et al⁸, 6% of his patients' group had wound infection after initial extraperitoneal drainage and after interval appendectomy wound infection occurred in 9% of his patients.⁸

In present study 16% of patients had wound infection after extra peritoneal drainage and after interval appendectomy wound infection occurred in 50% cases.

Ileocaecal tuberculosis

Tuberculosis of the gastrointestinal tract presents a common diagnostic and therapeutic problem to a surgeon in most of the developing countries. In this series ileocaecal tuberculosis formed 18% of cases taken up for study of mass in the right iliac fossa most common only to appendicular mass.

In present study 22% of cases of ileocaecal tuberculosis had associated pulmonary tuberculosis. 80% of cases of ileocaecal tuberculosis were from rural areas. Sputum positive for tubercle bacilli. According to ATM Prakash et al highest incidence of this disease was found in age group 20 -40 years.

According to SK Bhansali in his study 2/3rd of patients was in 3rd and 4th decades and sex incidence was almost equal⁵. In present study all patients were above 30 years age group with mass incidence between 30 -40 years. Male patients were more predominantly affected.

Tuberculous enteritis is commonest in the ileocaecal region in a series conducted by Atm Prakash³⁴ and series conducted by Bhansali S.K⁵, followed by involvement of ileum as the next common site. In present study all cases were involved of caecum with associated involvement of ileum in few cases. According to Prakash et al, in his study, abdominal pain is the commonest symptom in both obstructive and non-obstructive groups³⁴. In the latter it may

be colicky in nature, but in often vague related to umbilicus and right iliac fossa.

In present series, all patients complained of pain in right iliac fossa. All these patients had associated fever of mild degree and history of evening rise of temperature. History of loss of weight and appetite were also there in these patients.

In their study 62.3% of cases presented with bowel symptoms. Tenderness was present in 58% cases and 63% cases presented with mass. In present study 22 % cases presented with altered bowel habits. Tenderness was present in 66% of cases and 22% of cases presented with mass in the right iliac fossa.

According to S.K. Bhansali abdominal distension is also a common feature of non-acute case and is due to either ascitis or to chronic small bowel obstruction caused by lesion in ileum or ileocaecal region 5. In present study none of the cases had abdominal distension.

According to previous studies 60% of chronic cases of ileocaecal tuberculosis presented as mass in the right iliac fossa which may simulate either Crohn's disease, an appendix mass or a malignant lesion of caecum or ascending colon 5. It could be due to hyperplastic ileocaecal tuberculosis or lymphadenitis. In a study of 300 patients by Prakash ATM a mass was present in almost 50% of cases in right iliac fossa. In present study only 22 % of cases of ileocaecal tuberculosis complained of mass but on examination all the patients were found to have mass in the right iliac fossa.

In present study in 77% of cases duration of symptoms was less than 3 months and in others it was more than 6 months. According to Prakash et al 27% cases had duration of symptoms < 6 months and 43% cases had duration ranging from 6 months to 3 years. Rest ranged > 3 years 36. According to Prakash et al > 50% cases had Hb% < 10 gms and ESR > 30 mm/1st hour was noted in > 50% cases. In present study in 66% cases Hb% was < 10 gms and all cases had ESR > 40 mm/1st hour i.e., 77% cases had ESR levels between 40-60 mm and rest 23% cases had above 60 mm 36.

According to previous studies in ileocaecal tuberculosis there are characteristic radiological appearances in barium enema examination like

caecum is pulled up, ascending colon shortens, ileum retains its normal calibre.

In present study, contrast x-ray barium enema study was done in all cases. Main radiological features were narrowing of terminal ileum, obtuse ileocaecal angle and pulled up caecum. Clinical subjective improvement after surgery occurred after 2-6 months of ATT which may be because of surgical removal of basic tuberculous lesion.

In present study 66% cases underwent definitive surgery and followed by this were put on antituberculosis therapy. These patients responded well and had clinical improvement. Standard drug regimen used was:

Now treatment schedules have been reduced to only 2 categories, new and previously treated. New category includes categories 1 and 3 . Previously treated includes former category.

According to Ramesh C. Bharati et al who did a study of pattern of surgical emergencies of tuberculous abdomen, they did right hemicolectomy in 4.5% of cases limited resections in 6% cases and stricturoplasties in 36% cases 39. In present study of 18 cases of ileocaecal tuberculosis limited ileocaecal resection was done in 33% cases and right hemicolectomies in another 33% cases because of extensive associated involvement of ascending colon. In two case there was an associated stricture for which stricturoplasty was done.

In 4 of these 18 cases only biopsy could be done because of extensive adhesions. Procedure of ileocaecal resection is ideal as it takes less time and can be done even in cases of peritonitis 48. It does not require extensive mobilization of colon and hence risk of damage to other structures is minimal or absent. It involves limited resection and hence a considerable length of functioning colon is preserved.

Thus, ileocaecal resection is safe, quick and effective surgery for benign granulomatous lesions of intestine and has obvious advantages over conventional surgical technique of right hemicolectomy.

Carcinoma caecum

- ✓ Carcinoma, caecum formed 20% of cases of present study. 75% cases were seen in the age group above 50 years.

- ✓ 3 cases were males, and 7 cases were females.
- ✓ According to Crerand S et al in the series of 1553 patients who presented with primary colorectal cancer, over a period of 30 years at Mater Misericordiae Hospital, Dublin 39% patients were aged over 70 years and 51% were between 50 -69 years. 70% carcinomas were left sided, 22% carcinomas were right sided, and carcinoma caecum accounted for 18%.
- ✓ In present study 8 out of 10 cases presented with mass and dull aching pain. Average duration of symptoms was from 1-6 months, 50% of cases had vomiting and 87% cases had loss of weight.
- ✓ In Goligher [12] series, growths of the caecum, ascending colon and hepatic flexure, bowel symptoms were usually completely absent. In many instances the only manifestation will be of deterioration of general health with loss of weight and anaemia.
- ✓ In present series, 80% cases had a hemoglobin level of lower than 10 gm percent and the ESR reading was from 21-40 mm in 1st hour.
- ✓ According to Goligher [12] in majority of cases of carcinoma caecum constant but not very severe abdominal pain was experienced in the right iliac fossa or subcostal or epigastrium often associated with local tenderness. Abdominal mass was felt in few cases usually in the right iliac fossa. In present series, all the patients presented with mass in the right iliac fossa and dull aching pain. Mass was hard in consistency, tender and fixed. They had a dull note on percussion.
- ✓ In Goligher [12] study, barium enema examination revealed a bulky tumor that projects into the lumen of caecum or ascending colon, producing a filling defect with an irregular edge.
- ✓ In present series, contrast barium enema examination was done in these cases. Barium enema revealed persistent short irregular filling defect in caecum.
- ✓ N.G.B. Richardson et al said that sensitivity, specificity, and accuracy of abdominal USG in colonic tumors considered to be consistent with colonic carcinoma was 96, 67 and 97% respectively.
- ✓ In present study, 87.5% of cases were diagnosed accurately on USG. According to Goligher [12] experience with regards to growths of caecum and ascending colon, he prefers to practice the more extensive right hemicolectomy except when the patients general condition is such as to compel restriction of the resection to the minimum that offers a reasonable chance of cure.
- ✓ In present study the general condition of the patient was improved by giving high protein diet, hematinics and bowel was prepared. Laparotomy was performed and right hemicolectomy was done.
- ✓ The structures removed in right hemicolectomy are last 30 cms of ileum, caecum, appendix, ascending colon, junction of the right 1/3rd and left 2/3rd of transverse colon, leaf peritoneum containing vessels and lymphnodes. With care taken to avoid injury to the duodenum, right ureter, right spermatic and ovarian vessels.
- ✓ Post-operative period was uneventful and followed up by chemotherapy 5 - Fluorouracil 600 mg/m² IV bolus over 1 hour Leucovorin - 500 mg/m² in 2 hours IV infusion in saline Repeat cycle every 4 week x 6 cycles.

Psoas abscess

These cases formed 4% of present study group and Both cases complained of mass abdomen and both cases presented with fever and pain. Both the patients were treated surgically by draining the abscesses, post-operative follow up done and one patient came with recurrent psoas abscess. According to Santaella RO et al, typical patient presentation included fever with complaints of pain in the flank, hip, or abdomen. According to Walsh TR et al, in his study of 11 cases, 8 cases had fever as the presenting symptom. In present study ESR was > 40 mm/1st hour [26-50].

CONCLUSION

The highest incidence of mass in the right iliac fossa was seen in 4th and 5th decade. Most of our patients were of low socio-economic status. Commonest presenting symptoms were pain in right iliac fossa, fever, vomiting, loss of weight and altered bowel habits. Very few cases came with a history of mass in the right iliac fossa.

Tenderness was the prominent clinical sign which was elicited in most of these cases.

FUNDING

No funding sources.

ETHICAL APPROVAL

The study was approved by the Institutional Ethics Committee.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

ACKNOWLEDGMENTS

The encouragement and support from Bharath University, Chennai is gratefully acknowledged. For provided the laboratory facilities to carry out the research work.

REFERENCES

- Adalla SA. Appendiceal mass: Interval appendicectomy should not be the rule. *Br J Gin Pract* 1996; 50:168-169.
- Armstrong CP, Ahsan Z. Carcinoma of caecum. *J Royal College Surg* 1995; 35.
- Bailey and Love's. Short practice of surgery 22nd Edn. ELBS with Chapman and Hall, London, 1995.
- Foran B, Berne TV, Rosoft L. Management of appendiceal mass. *Arch Surg* 1978; 113:1144-1145.
- Bhansali SK. The challenge of abdominal tuberculosis in 310 cases. *USA* 1978; 65-76.
- Crerand S, Feeley TM, Waldron RP, et al. Colorectal carcinoma over 30 years at one hospital - No evidence for a shift to the right. *Int J Clorect Dis* 1999; 6:184-187.
- David C. Sabistan. Textbook of surgery: The biological basis of modern surgical practice. 15th Edn. WB. Saunders Co. 1999.
- Edward L. Bradley III, James Isaacs. Appendiceal abscess revisited. *Arch Surg* 1978; 113:130-132.
- Elhence IP, Sharma BD, Elhence BR, et al. Surgical treatment of abdominal tuberculosis. *IJS* 1984; 46:337-340.
- Erik Skoubo Kristensen, Ivan Huid. Appendiceal mass-Results of conservative management. *Ann Surg* 1982; 196:584-587.
- Gang P, Dass BK, Bansal AR, et al. Comparative evaluation of conservative management Vis early surgical intervention in appendicular mass - A clinical study. *J Ind Med Assoc* 1997; 95:179-80.
- Goligher JC. Surgery of anus, rectum, and colon. Bailliere Tindall, London, 1992; 426-489.
- Heriot AG. Ultrasonographically guided FNAC in the diagnosis of colonic lesions. *BJS* 1998; 85:1713-5.
- Hoffmann J, Rolf M. Ultraconservative management of appendicular abscess. *J Royal College of Surg* 36:18.
- Hoon JR, Dockerty MB, Pemberton J. Ileocaecal tuberculosis. *Int Abst Surg* 1950; 91:417.
- Hurme T, Nylamo E. Conservative v/s. operative treatment of appendicular abscess-Experience of 147 consecutive patients. *Ann Chir Gynaecol* 1995; 84:33-36.
- Ian P, Todd L, Fielding P. Rob and Smiths. Operative surgery: Alimentary tract and abdominal wall 4th Edn. Butterworths, London, 1990.
- Isaacs P, Zissis M. Colonic tuberculosis and adenocarcinoma: An unusual presentation. *Eur J Gastro Enterol Hepatol* 1997; 9:913-915.
- John L. Cameron: Current surgical therapy. 6th Edn. Mosby Inc., Philadelphia 1998.
- Jordan JS, Kovaleck PS. Appendicitis with palpable mass. *Ann Surg* 1981; 193:227.
- Joshi MJ. Conservative ileocaecal resection for diseases of ileocaecal region. *US*, 1976; 255-259.
- Juan Rosai. Ackennan's surgical pathology. 8th Edn. Harcourt brace and compnay asia pte Ltd. Mosby, 1996.
- Kapoor YK, Gupta S. Acute tuberculous abdomen. *IJS* 1991; 53:71-75.
- Kaushik SP, Bassett ML. Gastrointestinal tuberculosis simulating crohn's disease-Case report. *J Gastroenterol Hepatol* 1996; 11:532-534.
- Kelly J, Wirren Coutts M, Zenkins A. An unusual case of tleocaecal tuberculosis in an 80 year old caucasian male. *Int J Clin Pract* 1999; 53:77-79.
- Lazan J. Greenfield: Surgery-Scientific Principles and practice. 2nd Edn. Lippincott-Raven Publications, Philadelphia, New York.
- Michael J. Zinner: Maingot's abdominal operations. 10th Edn. Harold Ellis, Appleton and Lange, 1997.
- Miliand FC, Collins MC, Peck RJ. USG in investigation of RIF mass. *Br J Radiol* 1991; 64:17-19.
- Nagar RC, Karwan DL. Appendix mass-Early appendicectomy or conservative therapy?. *Indian J Surg* 1983; 259-262.
- Nitecki S, As-salia A, Schein M. Contemporary management of appendicular mass. *Br J Surg* 1993; 80:18.
- Persad RA, Gillatt DA. Appendicitis and occult carcinoma of caecum. *Br J Clin Pract* 1990; 44:726-728.
- Peter L. Williams: Gray's anatomy. 37th Edn. Longman Group UK, Ltd., 1989.
- Peter J, Morris, Ronald A. Matt: Oxford textbook of surgery. Oxford University Press, Oxford, 1994.
- Prakash ATM. Benign ulcero-constrictive lesions of the bowel. *Indian J Surg* 1976; 213-219.

35. Prakash ATM. Intestinal tuberculosis-18 years review. *Indian J Surg* 1978; 56-64.
36. Prakash ATM. Ileocaecal tuberculosis. *Aust J Surg* 1975; 45:371-75.
37. Pujari BD. Modified surgical procedures in intestinal tuberculosis. *Br J Surg* 1979; 66:180-181.
38. Rintoul RF. Farquharsons textbook of operative surgery. 8th Edn. Churchill Livingstone, Edinburgh, 1995.
39. Bharti RC. Pattern of surgical emergencies of tubercular abdomen in IGMC, Shimla-an experience of ten years. *Indian J Surg* 1996; 213-17.
40. Cotran RS. Robbins pathologic basis of disease. 6th Edn. Thomson Press (I) Ltd. Noida, 1999.
41. Richardson NG, Heriot AG, Kumar D, et al. USG in carcinoma colon. *Br J Surg* 1998; 55:50.
42. Rosati C, Huang SN, Ali J. Appendicular abscess presenting as Neoplastic - Ileocaecal obstruction. *Can J Surg* 1991; 34:381-384.
43. Santaella RO, Fishman EK, Lipsett PA. Primary vs. secondary iliopsoas abscess presentation, microbiology and treatment. *Arch Surg* 1995; 130:1309-1313.
44. Schwartz I. Seymour: Principles of surgery. 7th Edn. McGraw hill Inc, U.S. 1999.
45. Shah OP, Singh JN. Operative management of appendicular mass. *Indian J Surg* 1992; 54:257-259.
46. Simon JB. Occult blood screening for colorectal carcinoma-A critical review. *Gastroenterol* 1985; 88:820.
47. Schoeild PF, Anscome AR, Keeddie NC. Caecal tuberculosis. *Gut* 1967; 8:337.
48. Undre AR, Patel AR. Right quarter colectomy. *Indian J Surg* 1988; 176-178.
49. Walsh TR, Reilly JR. Changing etiology of iliopsoas abscess. *Am J Surg* 1992; 163:413-6.
50. Wong CK, Noblett HR, Aslain A. Cecal faecolith-An unusual presentation of cecal septum. *J Pediatr Surg* 1996; 31:1433-1444.