DOI: 10.14260/jemds/2015/738

CASE REPORT

LAPAROSCOPIC APPENDICECTOMY IN SITUS INVERSUS TOTALIS

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HOW TO CITE THIS ARTICLE:
M. Bhagavan Naik, K. Sugunakara Rao. "Laparoscopic Appendicectomy in Situs Inversus Totalis". Journal of Evolution of Medical and Dental Sciences 2015; Vol. 4, Issue 29, April 09; Page: 5064-5067,
DOI: 10.14260/jemds/2015/738

ABSTRACT: Situs inversus totalis (SIT) is an uncommon anomaly characterized by transposition of organs to the opposite side of the body in a mirror image of normal. Appendicitis in situs inversus patients can create diagnostic dilemma due to incongruous symptoms and signs because of the contra lateral disposition of the viscera. This may causes delay in proper diagnosis and treatment and may lead to incisions in inappropriate sites. Diagnostic laparoscopy excludes other causes of lower abdominal pain as well as it can localize the exact position of appendix. We present the case of left sided appendicitis and situs inversus totalis, who presented with pain in left iliac fossa and on examination there was rebound tenderness in left iliac fossa. Ultrasound abdomen revealed left sided appendicitis with situs inversus totalis. Laparoscopic appendicectomy was done successfully. We have done review of left sided appendicitis cases in pub med and and some of the characteristics are summarized in this article.

KEYWORDS: Laparoscopic appendicectomy, situs inversus totalis, left sided appendicitis.

INTRODUCTION: Situs inversus totalis (SIT) is an uncommon anomaly characterized by transposition of Organs to the opposite side of the body in a mirror image of normal.[1] It occurs in 1: 20,000 of the general population. Situs inversus totalis complicates diagnosis and management of acute abdominal pain. Acute appendicitis in these patients may present with confusing symptoms and signs because of abnormal position of appendix. About 50% of patients with left-sided appendicitis, for example, have pain on the right side.[2] We present the case of a boy with left sided appendicitis and situs inversus totalis, who was unaware of this condition, presented with pain in left iliac fossa and hypogastrium and rebound tenderness in left iliac fossa. Ultrasound abdomen revealed left sided appendicitis with situs inversus totalis. This case is particularly interesting because of the rarity of this association and the diagnostic difficulties that arise because of unusual, confusing clinical findings.

CASE REPORT: A 16 years male patient came to emergency department with pain in left iliac fossa and hypo gastrium, which started previous night. Patient also had nausea and one episode of vomiting. Our physical examination was notable only for rebound tenderness in left iliac fossa. Temperature is 38 degrees centigrade.

Laboratory findings: Hb12 gm%, total count 14,000/cu. mm, R.B.S. 96mg%, serum creatinine-1.2mg%. Based on these clinical findings, we considered right and left sided appendicitis, diverticulitis, and renal colic were considered in differential diagnosis.

Chest x-ray[Fig. 1] revealed dextrocardia and fundic gas shadow on right side. Ultra sound abdomen showed situs inversus and probe tenderness in left iliac fossa. A diagnostic laparoscopy was performed for a presumed diagnosis of acute appendicitis with situs inversus. T. V. monitor was kept on left side of the patient. Surgeon as well as camera assistant was standing on right side of the

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patient. Initial diagnostic laparoscopy, through 10mm umbilical camera port, has confirmed the ultrasonographic finding of visceral situs inversus totalis.[Fig. 2] At the same time an inflamed appendix was seen in left iliac fossa.[Fig. 3] Two other 5mm ports were placed, one in suprapubic region, another one in right iliac fossa. Appendix was holded with grasper through the port placed in right iliac fossa. Meso appendix was cauterized with bipolar cautery and base of the appendix was ligated with loop ligature and divided. Specimen was retrieved through 10 mm port. Operative time was 30 minutes and post-operative period was UN eventful.

DISCUSSION: Left sided appendicitis occurs in two conditions, situs inversus totalis and mid gut malrotation. Situs inversus results from a rotation in the opposite direction of the viscera during the development of the embryo. Due to the contra lateral disposition of the viscera, the diagnosis and surgical approach of these patients may be more difficult than that of normal patients. About 40%-50% patients of acute appendicitis with left sided appendix present with pain in right iliac fossa. This phenomenon suggests that the central nervous system may not share in the general transposition.[3] This diagnostic dilemma causes delay in proper diagnosis and treatment. These incongruous symptoms and signs in this condition may lead to incisions in inappropriate sites which have been documented in greater than 40% of such cases. A detailed clinical history, physical examination and proper radiological investigations are useful in obtaining accurate diagnosis. Ultrasound abdomen is helpful for diagnosis in most of the cases. However, CT scan abdomen is more accurate in localization of offending organ.

When there is a doubt regarding diagnosis, laparoscopy should be done as early as possible to prevent further complications of appendicitis like gangrene and perforation. Diagnostic laparoscopy can localize the exact position of appendix so that inappropriate incisions can be prevented, even if open appedicectomy is planned. Furthermore, diagnostic laparoscopy through umbilical port has an invaluable role in these cases, as this allows other two ports to be strategically placed and laparoscopic appendicectomy can be done without any technical difficulties.[4]

Some authors suggest that appendicectomy should be done even prophylactically, if laparoscopy is done for other cause. This may prevent future problems in diagnosis and treatment of appendicitis in these patients.[2][5][6]

The pub med search was done.[4][5][6][7][8][9][10] and it was noted that Akbulut S et al[8] have published a review of 95 Left-sided appendicitis cases and a case report and recently Borgaonkar VD et al[7] have published a case report of Laparoscopic cholecystectomy and appendicectomy in situs inversus totalis. Total 98 patients were undergone surgery for left sided appendicitis including this case. After reviewing these articles some of the clinical characteristics of these cases are summarized below [Table 1], [Table 2], [Table 3], [Table 4].

Situs inversus totalis	69
Malrotation of mid gut	23
Others	6

Table 1: Anomaly causing left sided appendicitis

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Left side	62
Right side	14
B/L lower quadrant	7
Other areas	8

Table 2: Localization of pain

Pre-operative	52
Intra operative	19
Known	14

Table 3: Time of diagnosis

Laparoscopic appendicectomy	10
open appendicectomy	88

Table 4: Technique of surgery

In conclusion, the association of appendicitis and situs inversus can create diagnostic dilemma because of the contra lateral disposition of the viscera. Familiarity of this association makes a timely and accurate diagnosis that will prevent complications and incisions at inappropriate sites. However, ultrasound abdomen and C. T. scan are necessary for accurate diagnosis. Laparoscopic approach is ideal for diagnosis as well as management of pain abdomen in situs inversus totalis.

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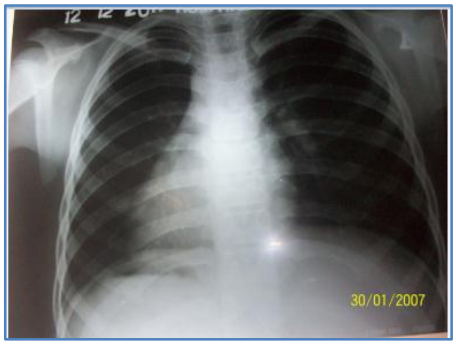

Fig. 1: x-ray showing Dextro Cardia

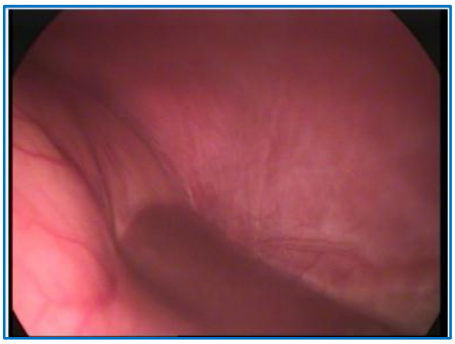

Fig. 2: Greater Curvature of Stomach on right side

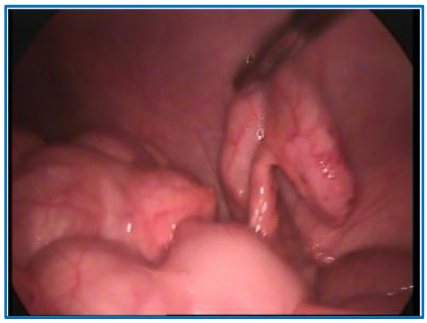

Fig. 3: Inflammed appendix in left iliac Fossa

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FINANCIAL OR OTHER COMPETING INTERESTS: None

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Date of Submission: 25/03/2015.
Date of Peer Review: 26/03/2015.
Date of Acceptance: 30/03/2015.
Date of Publishing: 09/04/2015.