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Laparoscopic Nissen Rossetti fundoplication in situs inversus totalis—A blessing in disguise

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ABSTRACT

INTRODUCTION: Laparoscopic Nissen fundoplication and Nissen Rossetti fundoplication represent two different surgical approaches for treating hiatus hernia. We report a Laparoscopic Nissen Rossetti fundoplication (LNRF) for gastro esophageal reflux disease (GERD) in a patient with situs inversus totalis (SIT).

PRESENTATION OF CASE: A 38-year-old man with SIT was diagnosed with sliding hiatus hernia. We performed Laparoscopic Nissen Rossetti procedure for this patient. The patient was discharged on first postoperative day after he tolerated oral liquids.

DISCUSSION: SIT is a rare anomaly presenting in 1–2 per 10,000 individuals. As this rare anomaly (SIT) led preoperative anticipation of respiratory and blood loss complications the above procedure was chosen. Less operating time, less calculated blood loss and improvement of symptoms with no associated gas bloating syndrome was noted especially with SIT.

CONCLUSION: We recommend relook into the Laparoscopic Nissen Rossetti fundoplication as an effective procedure in GERD especially with rare anomalies like SIT.

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1. Introduction

Laparoscopic Nissen fundoplication and Nissen Rossetti fundoplication represent two different surgical approaches for treating hiatus hernia.^{1,2} Studies comparing these two procedures highlighted the decreased intra operative times and the decreased incidence of gas bloating syndromes in the Nissen Rossetti fundoplication procedure. The incidence of postoperative dysphagia was almost similar to its counterpart. The functional outcomes of both the procedures for the relief of GERD symptoms were similar.^{1,2}

SIT with mirror – image dextrocardia was described first in 1643 by Severinus.^{9,10} It is thought to be occurring in around 1–2 individuals per 10,000 and with equal frequency in males and females.^{3,4,12} It is characterized by transposition of abdominal viscera, and with dextrocardia and it is referred to as situs inversus totalis (SIT). The anomaly may coexist with congenital cardiac defects in 10% and with Kartagener's syndrome or primary ciliary dyskinesia (PCD), which refers to ciliary dysfunction in 20%.^{11,12} The patients may have normal longevity as compared to the normal population.

Ultrasonography may help in the diagnosis of the condition in itself with the possible associated anomalies.¹⁴

Documenting situs inversus in an individual is important to modify the surgical technique in order to prevent any inadvertent clinical or surgical mishap. This is especially because of its possible associations with primary ciliary dyskinesia and splenic malformations.^{3,4}

We present what is possibly the first reported case of laparoscopic Nissen–Rossetti fundoplication in a patient with SIT from India.

2. Case report

A 38-year-old man with SIT was diagnosed with a sliding hiatal hernia. Nissen Rossetti fundoplication was done in modified lithotomy position. The ports were placed in a configuration that was the mirror image of our usual fundoplication procedure.⁸ The procedure was carried out in the standard fashion with intrathoracic dissection of the esophagus and the cardia of the stomach, which was brought down below the esophageal hiatus with adequate length and without tension. The short gastric vessels were not divided to mobilize the gastric fundus. Closure of the crura and a fundic wrap was done with 2/0 polyglactin 910 (Vicryl, Ethicon Inc., Johnson and Johnson) sutures tied intra-corporeally. The total

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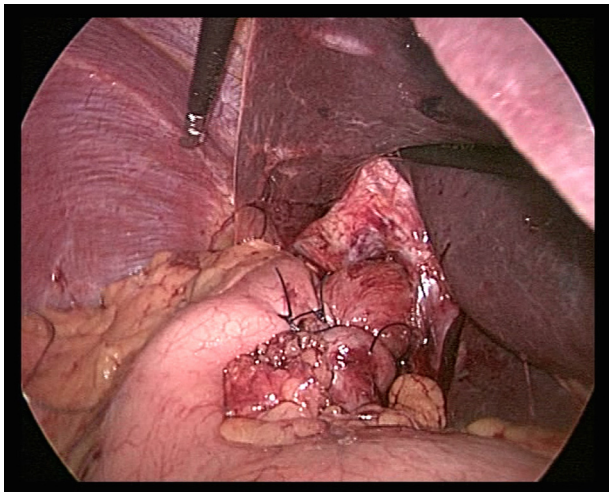


Fig. 1. Fundoplication in situs inversus totalis.

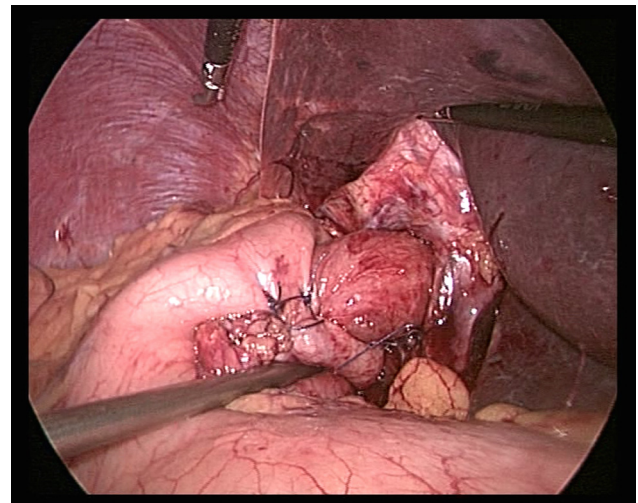


Fig. 4. Patient with doctor and the depiction of ports placed in the patient for laparoscopic fundoplication in situs inversus totalis.

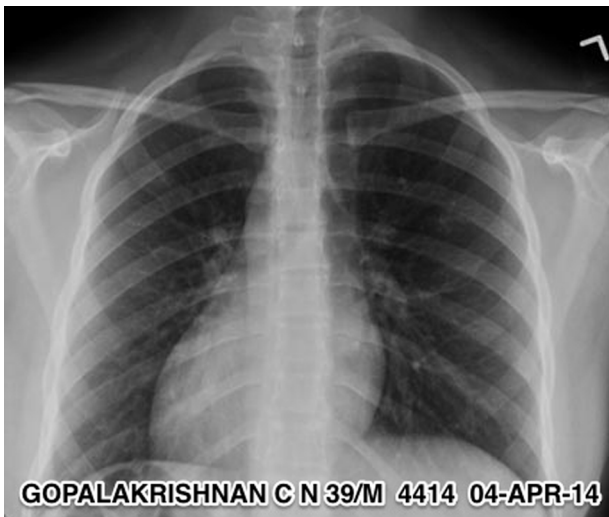


Fig. 2. Fundoplication in situs inversus totalis.



Fig. 3. Dextrocardia depicted in the patient with situs inversus totalis.

operative time was 90 min. The patient was discharged on first postoperative day after he tolerated oral liquids (Figs. 1–4).

3. Discussion

The challenges expected in this anomaly were anticipating splenic malformations with unexpected blood loss during the division of short gastric vessels.^{9–14} Decreasing the intra operative time was prime due to possible primary ciliary dyskinesia causing respiratory complications in the patient who had a 10-year history of smoking.^{12,13}

Though no complications have been encountered till date in either procedure at our center, still this rare anomaly (SIT) led pre-operative anticipation of respiratory and blood loss complications. Thus we chose to perform Nissen Rosette fundoplication for the patient.

4. Conclusion

Laparoscopic Nissen Rossetti fundoplication (LNRF) can be performed in SIT safely with the benefit of decreased postoperative times and avoidance of unexpected blood loss. Postoperative dysphagia is relatively less in the former procedure and this is explained by studies. Safe surgery for GERD is of utmost importance to overcome the technical and ergonomic difficulties especially in SIT.

Conflict of interest

None declared.

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None.

Ethical approval

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

Author contributions

Dr Kaundinya Kiran Bharatam: Main author and primary consultant involved in the treatment of this patient and procedure. Was the main surgeon in the surgical procedure mentioned. Dr Manuneethi Maran: Co-author and secondary consultant involved in the treatment of this patient and procedure. Was the second surgeon in the surgical procedure mentioned. Dr P.K. Siva Raja: Co-author and assistant consultant involved in the treatment of this patient and procedure. Was the second surgeon in the surgical procedure mentioned.

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