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Case Report

A rare case of giant epiphrenic diverticulum

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ABSTRACT

Epiphrenic diverticulum is a type of pulsion diverticulum and are often asymptomatic and small in size. Symptomatic large epiphrenic dicverticulum has very low prevalence. We present a very rare case of giant oesophageal epiphrenic diverticulum of around 9 cm in size. Open thoracotomy or thorascopic procedure is generally require for the treatment. But with the help of robotic surgery, even very large epiphrenic can be excised transhiataly with good and early postoperative recovery. The robotic system has an advantage of better visualization and better degree of movement which help in the ease of dissection of the diverticulum. Large epiphrenic diverticulum in upper part of the lower oesophagus can be dissected and excised easily transhiatally avoiding thoracotomy-associated morbidity.

Keywords: Diverticulum, Epiphrenic, Rare, Giant diverticulum, Oesophageal diverticulum

INTRODUCTION

Oesophageal diverticulum are anatomically divided into three types, pharyngoesophageal, mid esophageal and epiphrenic diverticulum and mechanically divided as pulsation and traction diverticulum. Epiphrenic diverticulum is relatively rare and is the mainly pulsating type of diverticula. Barium swallow contrast study showed a prevalence of 0.015-0.2%.[1] Most commonly asymptomotic and present on left side. Other diseases like impaired motility disorders are often associated with epiphrenic diverticulum.

Here, we are presenting a rare case report of a very large oesophageal epiphrenic diverticulum

CASE REPORT

A 59-year-old male presented with symptoms of recurrent reflux for 3 years with no symptomatic relief with proton pump inhibitors and antacids. His past surgical or medical history was non-significant. Physical examination findings revealed a soft non distended and non-tender abdomen. Barium esophagogram showed withholding up of content in the lower oesophagus with outpouching suggestive of esophageal diverticulum on the right side. Esophago-gastro-duodenoscopy revealed an esophageal diverticulum (35 cm from incisors) containing food particles and liquids. The mouth of the diverticulum was large in size similar to the GE junction, with multiple nodules in the antrum and superficial ulcers.

Computerized tomography (CT) of the abdomen and lower chest showed a giant right-sided epiphrenic diverticulum around 7cm above the gastroesophageal junction measuring around 9x7x6.0 cm, a collar of about 2.5 cm with a wall thickness of around 3 mm.

Treatment

He planned for robot-assisted excision of the epiphrenic diverticulum from the trans hiatal route using the latest Xi DaVinci® robotic system.

After creating pneumoperitoneum and port placement in a standard manner, the docking of the robot was done. Dissection starts with division of the gastrohepatic ligament with a pars flaccida approach to reach the esophageal hiatus of the right side followed by mobilization along the greater curvature of the stomach. The abdominal oesophagus and hiatus are mobilised followed by the division of the phreno-oesophageal membrane and the posterior mediastinum was entered. Diverticulum was dissected all along the walls with the most difficult part was to reach the cranial portion of the diverticulum. But with the advantage of robotics, it was possible to dissect giant epiphrenic diverticulum transhiatally and we were able to transect the diverticulum transhiatally using two 45 mm staplers

The robotic system added the advantage of magnification and with the use of its 3D-HD camera, it also allows depth perception and also seven degrees of freedom of movement that helps to perform difficult surgical manoeuvres easily and safely. Microscopic findings showed normal oesophagal histology with no evidence of malignancy.

The patient was allowed a liquid diet on postoperative day 2 which he tolerated well and was gradually increased. The patient underwent a UGI gastrographic study on the 4th POD which shows no evidence of a leak or narrowing of the esophagus. The patient was discharged in satisfactory condition on postoperative day 5 on a liquid diet.

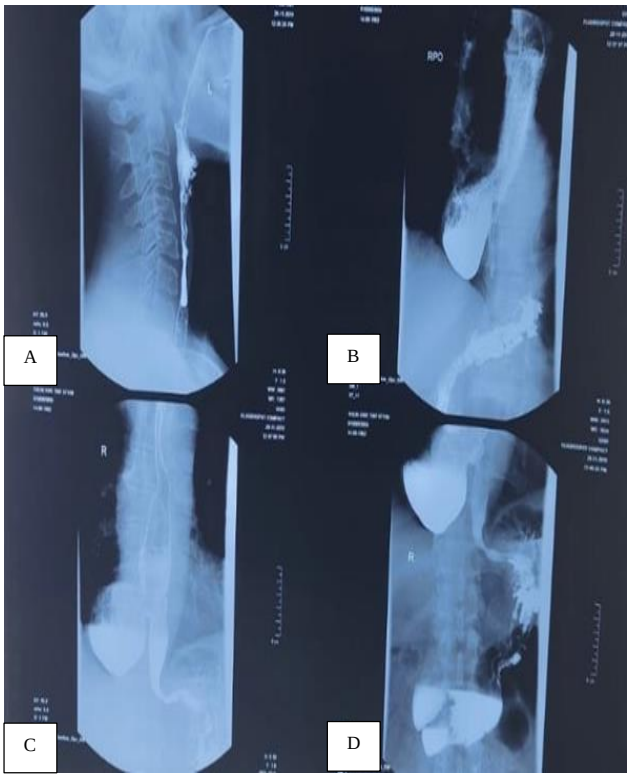

Figure 1 (A-D): Barium swallow showing large diverticulum on right side of lower esophagus.

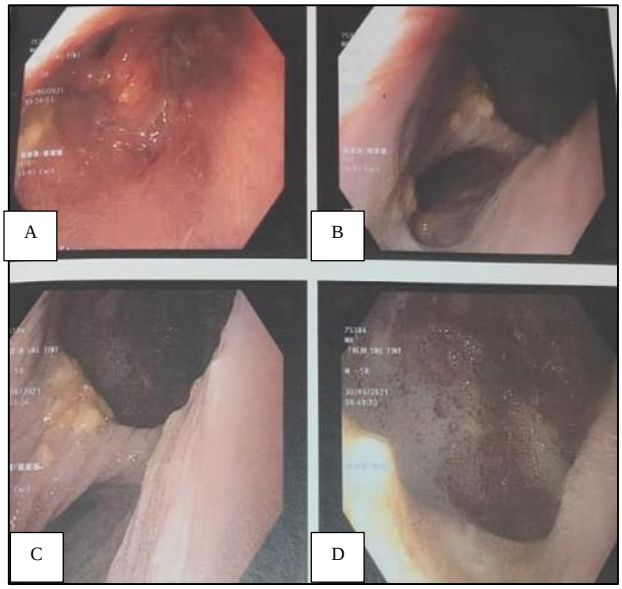

Figure 2 (A-D): UGI endoscopy of diverticulum in distal esophagus with mucus collection and no lesion was seen.

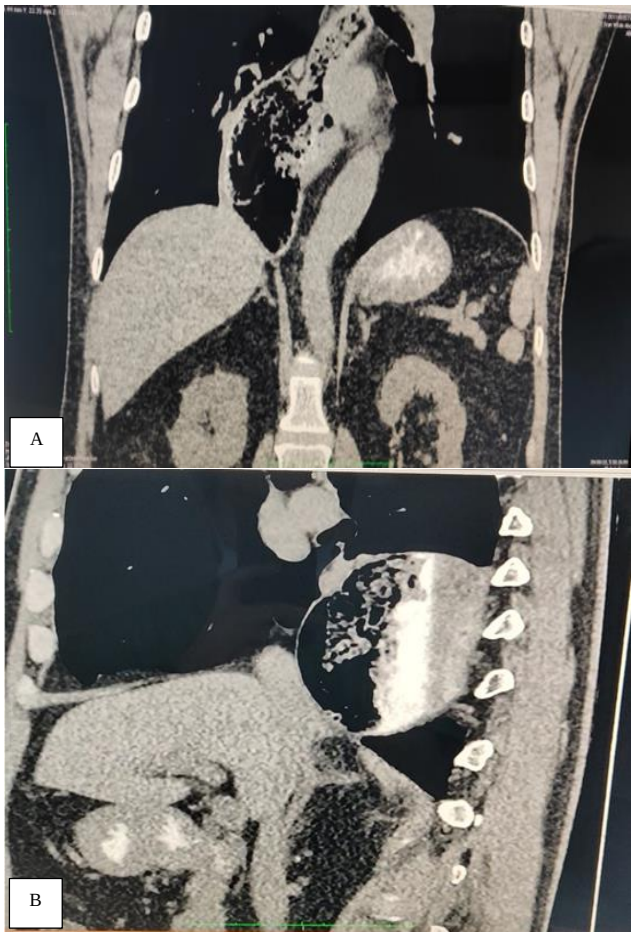

Figure 3 (A and B): Images of CECT thorax showing a giant right-sided epiphrenic diverticulum around 7 cm above the gastroesophageal junction measuring around 9×7×6.0 cm, a collar of about 2.5 cm with a wall thickness of around 3 mm.

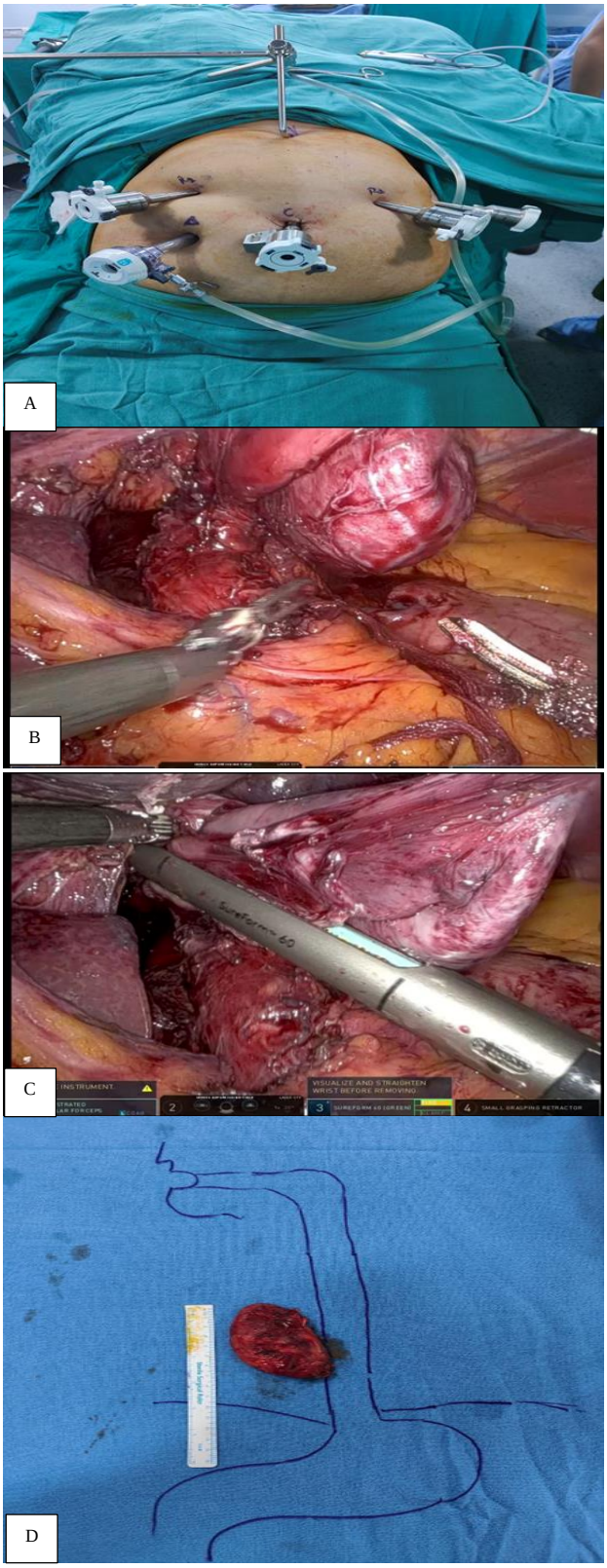

Figure 4 (A-D): Intraoperative findings showing post postition in Da Vinci Xi robotic system, diverculum dissected of the mediatinal cacity and right side pleura and neck of the diverticulum identified. linear cutting sureform 60 stapler applied over the neck of diverticulum and diagrmatic representation of diverticulum.

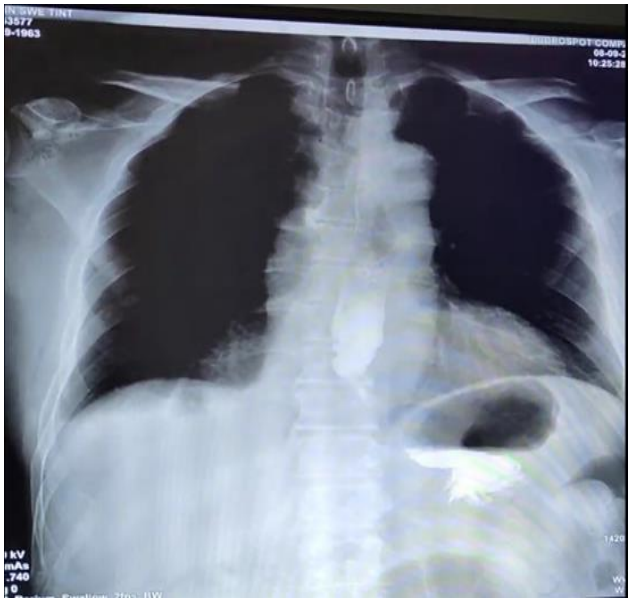

Figure 5: UGI gastrograffin study on the 4th POD which shows no evidence of a leak or narrowing of the esophagus. Contrast going free flow in to the stomach.

DISCUSSION

Epiphrenic diverticulum is a rare entity to detect inspite of so much advancement in diagnostic investigations. Esophageal motility disorders are the frequent causative factors for the development of epiphrenic diverticulum.[2-4] In the past, excision of the epiphrenic diverticulum was done through left-side thoracotomy or laparotomy with myotomy on the other side and antireflux procedure.[5] At present, advancement in laparoscopy and robotic surgery has shown an obvious advantage over open surgery because it enables good exposure of gastroesophageal hiatus, ease of access to lower oesophagus transhiatally, avoiding thoracotomy, less postoperative pain, early recovery and short hospital stay.[1] A barium swallow is usually the first investigation and a road map for further investigation.[2] Also, it can rule out other etiologies like motility disorder, achalasia cardia, carcinoma or any stricture along with the size position and dynamic of the diverticulum. Upper GI endoscopy should be done to look for position and other associated lesions and other associated oesophageal aetiology.[4] Manometry is usually not indicated in every patient but should be done if motility disorder is suspected on barium or endoscopy. CT is indicated to evaluate the size, cranial end of the diverticulum, 3-dimensional evaluation of the diverticulum and also to rule out associated pathology in the mediastinum or lungs or even hiatus hernia. An asymptomatic diverticulum is not a valid indication for surgery, as the risk-benefit ratio for each individual is different and should be calculated with respect to outcome. The presence of severe dysphagia, regurgitation, gastro-esophageal disease and halitosis not responding to medications are proper indications for surgical intervention. The average size of diverticula mentioned is 47 mm in maximum dimensions mentioned

however there is a case report that shows 10×10×5.0 in size of diverticulum which is the largest present till date and our case as the second largest in our knowledge.[10]

It is difficult to dissect large diverticula or diverticula that are located in the mid-oesophagus and are associated with the rupture of the pleura with subsequent pneumothorax. However, with the use of Da Vinci, one can access the lower esophageal diverticulum and be able to transect it transhiatally avoiding thoracotomy and also complications can be avoided as per pernazza et al as shown in our case also.[11] Da-Vinci robotic surgical system with three-dimensional vision and 7-degrees freedom of movement and stereoscopic endoscope allows ease of dissection and handling.

We have done two cases with giant esophageal diverticulum with no esophageal motility disorder one was reported earlier as a case report in both of them we have done diverticulectomy. With the follow-up of more than 30 months, patients are doing well with no complaints and complications regarding dysphagia or regurgitation.

CONCLUSION

The robotic system has a advantage of better visualization and better degree of movement which help in the ease of dissection of the diverticulum. Large epiphrenic diverticulum in upper part of lower esophagus can be dissected abd excised easily transhiatally avoiding thoracotomy associated morbidity with the robotic system.

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Ethical approval: Not required

REFERENCES

1. Hukkeri VS, Jindal S, Qaleem M, Tandon V, Govil D. Robotic transhiatal excision of epiphrenic diverticula. J Robot Surg. 2016;10(4):365-8.
2. Ayoub K, Banjah B, Banjah B. A Case Report of an Epiphrenic Esophageal Diverticulum was Treated via Laparoscopic Transhiatal Diverticulectomy. Int J Surg Res Pract. 2019;6:105.
3. Bhandarwar AH, Tungenwar PN, Sawakare YM, Wagh AN, Patel CB, Gandhi SS. Large Epiphrenic Diverticula: A Rare Case Presentation. Clin Pract. 2015;5(4):784.
4. Gonzalez-Calatayud M, Targarona EM, Balague C, Rodriguez-Luppi C, Martin AB, Trias M. Minimally invasive therapy for epiphrenic diverticula: Systematic review of literature and report of six cases. J Minim Access Surg. 2014;10(4):169-74.
5. Chowdhury ATMM, Xuemei Z. A Case Report on Large Epiphrenic Diverticula. J Med Diagn Meth. 2016;5:215.
6. Gorgoglione F, Castorani G, Palladino N, Orciulo GV, Ferretti GM, Palladino D, et al. Giant epiphrenic diverticulum: an unusual case from diagnosis to treatment. BJR Case Rep. 2022;8(3):20210232.
7. Belsey R. Functional disease of the esophagus. J Thorac Cardiovasc Surg. 1966;52:164-88.
8. Thomas ML, Anthony AA, Fosh BG, Finch JG, Maddern GJ. Oesophageal diverticula. Br J Surg. 2001;88(5):629-62.
9. Reznik SI, Rice TW, Murthy SC, Mason DP, Apperson-Hansen C, Blackstone EH. Assessment of a patho-physiology-directed treatment for symptomatic epiphrenic diverticulum. Dis Esophagus. 2007;20(4):320-7.
10. Yankov G, Mekov E, Kovacheva M, Vladimirov B, Petkov R. A Case of a Giant Epiphrenic Esophageal Diverticulum. Acta Medica Bulgarica Sciendo. 2020;47(1):56-9.
11. Pernazza G, Monsellato I, Pende V, Alfano G, Mazzocchi P, D'Annibale A. Fully robotic treatment of an epiphrenic diverticulum: report of a case. Minim Invasive Ther Allied Technol. 2012;21(2):96-100.

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