Cardiac Arrest Due to Pneumomediastinum following Esophagojejunal Anastomotic Fistula: A Case Report.

Ruiling Ye (1439349805@qq.com)
The First Affiliated Hospital of Chongqing Medical University
Wei Tang
Dazhou Centrel Hospitai
Shiyu Luo
The First Affiliated Hospital of Chongqing Medical University
Dong Wan
The First Affiliated Hospital of Chongqing Medical University

Case report

Keywords: cardiac arrest, pneumomediastinum, esophagojejunal anastomotic fistula, gastrectomy.

Posted Date: March 22nd, 2021

DOI: https://doi.org/10.21203/rs.3.rs-321705/v1

Abstract

Background Cardiac arrest due to pneumomediastinum following esophagojejunal anastomotic fistula is one of the most severe postoperative complications. However It presents with insidious symptoms and easy to be ignored.

Case presentation: A 59-year-old man had total laparoscopic radical gastrectomy for gastric cardia adenocarcinoma (GCA). Since then, He began to appear shortness of breath and dyspnea gradually. The image reported severe pneumomediastinum due to esophagojejunal anastomotic fistula. Sudden cardiac arrest developed. Immediate cardiopulmonary resuscitation (CPR) and epinephrine rescue were carried out. Stents were placed to plug the fistula and drainage was performed.

Conclusions: Pneumomediastinum is easily overlooked as a complication of esophagojejunal anastomotic fistula after subtotal gastrectomy. A delay in diagnosis increases the rate of cardiac arrest. At present, the treatment of esophagojejunal anastomotic fistula mainly adopts conservative treatment such as drainage and interventional therapy. But the death rate is extremely high. Early positive identification is the life-saving procedure and should not be delayed.

Background

Esophagojejunal anastomotic fistula (EJF) is one of the most common and fearful complications of Laparoscopy- assisted radical gastrectomy(LAG) for gastric cancer[1, 3]. It can induce pneumomediastinum. Pneumomediastinum in turn could lead to hemodynamic instability and circulatory collapse. This complication has insidious onset which could be easily ignored. A delay in diagnosis increases the risk of death[4, 5]. We report a case of pneumomediastinum with EJF after LAG. The importance of early diagnosis and treatment strategy to avoid major complications was discussed.

Case Presentation

A 59-year-old man was admitted to hospital after “physical examination showed gastric cardia adenocarcinoma(GCA) for 6 days”. The man had no significant medical history and the preoperative examination was normal. Under general anesthesia, the patient underwent total laparoscopic radical gastrectomy, routine pneumoperitoneum was established, total gastrectomy was performed, and roux-Y anastomosis was performed for the esophagus and jejunum. Since then, the patient began to appear shortness of breath and dyspnea gradually. On 6 days after operation (day 6), enhanced CT scan of chest, abdomen and pelvis (Fig. 2) showed that both lungs were scattered with few inflammation. Gas accumulation was widespread in mediastinum. Pneumomediastinum due to EJF occurred and conservative treatment was initiated. On day 9, He was transferred to the ICU after developing dyspnea where tracheal intubation was performed. Immediately, blood pressure (BP) dropping to 63/43 mmHg and sudden cardiac arrest developed. Immediate cardiopulmonary resuscitation (CPR) and epinephrine rescue were carried out. After 4 minutes, the patient's spontaneous heartbeat recovered. Due to the

unstable vital signs of the patient, no external examination or surgical intervention was required. On day 17, follow-up CT reexamination (Fig. 3) demonstrated that pneumatosis increased in mediastinum. Interventional therapy was performed at the EJF of the patient, stents were placed to plug the fistula and drainage was performed. However, the patient was died from the hospital 3 months later after an multifunctional organ failure.

Discussion And Conclusions

Pneumomediastinum is defined by the deleterious effects on the cardiovascular and pulmonary systems[8]. The increased intra- mediastinum pressure and gas compresses trachea, bronchi and lungs, damage ventilation, decreases cardiac output and large blood vessels dilation, which may lead to respiratory and circulatory failure. Anastomotic fistula after GCA can easily lead to pneumomediastinum.

At present, EJF is diagnosed mainly through CT and pleural puncture to extract the contents entering the thoracic cavity through the digestive tube [9]. However, EJF patients with pneumomediastinum is difficult to go to the radiology department for radiographic examination. Therefore, It is important to emphasize that postoperative patients need to closely observe the respiratory condition, and regularly review the chest and abdomen CT examinations, so as to identify pneumomediastinum in time.

At present, the treatment of EJF mainly adopts conservative treatment such as drainage and interventional therapy[2, 6, 7]. But the death rate is extremely high. early positive identification is the life-saving procedure and should not be delayed.

Abbreviations

GCA gastric cardia adenocarcinoma CPR cardiopulmonary resuscitation EJF esophagojejunal anastomotic fistula LAG Laparoscopy- assisted radical gastrectomy

Declarations

Ethics approval and consent to participate

This report was prepared in accordance with the ethical standards of the institutional ethics committee and with the 1964 Helsinki Declaration.

Consent for publication

Written informed consent for the publication of their clinical details was obtained from the patient. A copy of the consent form is available for review by the editor of this journal.

Availability of data and materials

All data generated or analysed during this study are included in this published article.

Competing interests

The authors declare that they have no competing interests.

Funding

Not applicable.

Authors' contributions

RY and WT managed the patient. SL and WT Recorded data. RY and WT analyzed and interpreted the patient data. SL did the literature search. RY and DW critically revised the report. All authors read and approved the final manuscript.

Acknowledgements

Not applicable.

Authors' information

[1]Department of Emergency and Critical Care Medicine, the First Affiliated Hospital of Chongqing Medical University, Youyi Road1, Yuzhong District, Chongqing 400016, P.R.China;[2]*Department of Health Medicine, Dazhou Central Hospital, Sichuan, Dazhou, 635000, China*

References

1. Barchi Leandro Cardoso, Ramos Marcus Fernando Kodama Pertille,Pereira Marina Alessandra. et al. Esophagojejunal anastomotic fistula: a major issue after radical total gastrectomy.[. J]Updates Surg. 2019;71:429–38.
2. Facy Olivier,Goergen Martine,Poulain Virginie. et al. Minimally invasive management of postoperative esophagojejunal anastomotic leak.[J]. Surg Laparosc Endosc Percutan Tech. 2014;24:183–6.
3. Lang H, Piso P, Stukenborg C, et al. Management and results of proximal anastomotic leaks in a series of 1114 total gastrectomies for gastric carcinoma. Eur J Surg Oncol. 2000;26:168–71.
4. Sierzega M, Kolodziejczyk P, Kulig J, Polish Gastric Cancer Study Group. Impact of anastomotic leakage on long-term survival after total gastrectomy for carcinoma of the stomach.Br. J Surg. 2010;97:1035–42.
5. Yoo HM, Lee HH, Shim JH, et al. Negative impact of leakage on survival of patients undergoing curative resection for advanced gastric cancer. J Surg Oncol. 2011;104:734–40.
6. Siewert JR, Stein HJ. Bartels H,[Anastomotic leaks in the upper gastrointestinal tract]. [J]Chirurg. 2004;75:1063–70.
7. Murphy Thomas. Jobe Blair A,Endoluminal management of anastomotic dehiscence after esophagectomy: an increasing quiver of options reflects the difficulty in realizing a definitive therapy.

[. J]Gastrointest Endosc. 2010;71:387–9.
8. Gębala-Minta, Kinga,Orzechowska Magdalena,Danielecki Cezary, et al. [Cardiosurgical treatment of pneumomediastinum caused by polytrauma].[J]Pol Merkur Lekarski, 2019, 46: 139–41.
9. Zylak CM, Standen JR, Barnes GR, et al. Pneumomediastinum revisited[J]Radiographics. 2000;20:1043–57.

Figures

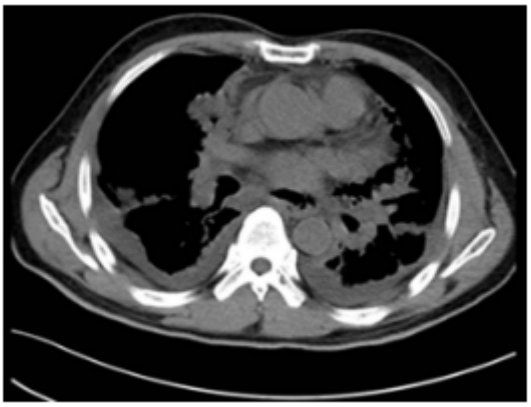

Figure 1

Enhanced CT angiography of chest, abdomen and pelvis. Transverse section. Gas accumulation was widespread in mediastinum.

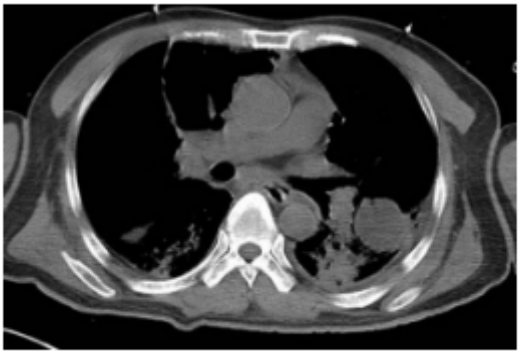

Figure 2

Enhanced CT scan of chest, abdomen and pelvis. Transerse section. pneumatosis and effusion increased in mediastinum compared with Fig 1.