WORLD JOURNAL OF PHARMACEUTICAL RESEARCH
SJIF Impact Factor 8.074
Volume 8, Issue 10, 174-183. Review Article ISSN 2277– 7105

SYMPTOMATIC EPIGASTRIC HERNIA TREATMENT TO A PREGNANT PATIENT IN THE SECOND TRIMESTER - A NECESSARY RISK?

Gloire à Dieu Byabene*, Sorin Cimpean, David Lipski, Marechal Marie Thérèse, Benjamin Cadiere, Mattia Bez, Ariana Grilli and Guy-Bernard Cadiere

Saint Pierre University Hospital, Brussels.

Article Received on
08 July 2019,

Revised on 29 July 2019,
Accepted on 19 Aug. 2019

DOI: 10.20959/wjpr201910-15646

***Corresponding Author**
Gloire à Dieu Byabene
Saint Pierre University Hospital, Brussels.

ABSTRACT

Introduction: Advances in laparoscopic surgery have led to the development of methods to perform traditionally major abdominal surgery and reduce morbidity using minimally invasive surgery techniques. **Case presentation:** We present a case report and a review of literature of a patient pregnant in the second trimester with a symptomatic epigastric hernia that we treated by laparoscopy. **Discussion:** Often the management of the parietal surgery is postponed to several months after delivery for the maternal-fetal risks associated with surgery in general and for the disappearance of physiological changes associated with pregnancy. Recent literature has shown that pregnant patients may undergo laparoscopic surgery safely during any trimester without any increased risk to the mother or fetus. **Conclusion:** Pregnancy is no longer considered an absolute contraindication to laparoscopic procedures. In selected cases, the parietal hernia surgical treatment during the pregnancy is justified.

INTRODUCTION

Advances in laparoscopic surgery have led to the development of methods to perform traditionally major abdominal surgery and reduce morbidity using minimally invasive surgery techniques. It is not surprising that surgeons applied these techniques to a high-risk group of patients, such as pregnant women. In the not too distant past, pregnancy was considered an absolute contraindication for laparoscopic surgery. Because a growing number of reports in the literature have suggested its safe use, however, laparoscopy is being performed in pregnancy with increasing frequency in many centers.[1–3]

We present a case report and a review of literature of a patient pregnant in the second trimester with a symptomatic epigastric hernia that we treated by laparoscopy.

CASE PRESENTATION

Patient, 27 years old, in 22 weeks of pregnancy was admitted by the consultation for a hyperalgic epigastria tumefaction that has been progressing for several months. The epigastric pain is of a twist type that is calmed by vomiting. The pain was rated by the patient at 8/10 by the patient in acute period. The medical history revealed 3 pregnancies. The abdomen was enlarged by a pregnant uterus, with a uterine height of 24 cm. The rest of the abdomen was depressible, sensitive to palpation, epigastria palpated mass sensitive to palpation, not reducible, through a 4 cm x 3 cm wide hole. The rest of the abdominal examination was normal. The abdominal ultrasound was performed that objectified an epigastric hernia containing omentum and the bowel. Because of a very symptomatic epigastric hernia we decided to perform a treatment by laparoscopy. An obstetrical expertise was requested for a close follow-up of the pregnancy in preoperative, intraoperative and immediate postoperative care. Indomethacin was prescribed before surgery and in the immediate postoperative period.

Intraoperatively we visualize the hernia of 4 cm x 4 cm with omentum and bowel content. (Figure 1) The hernia was closed with a resorbable wire and a non-resorbable mesh was placed. (Figure 2) The patient did not have abdominal pain with types of contraction either before or after the contraction. Fetal monitoring remained normal.

The post-operative evolution has been favorable. The discharge was authorized on the first postoperative day.

IMAGES

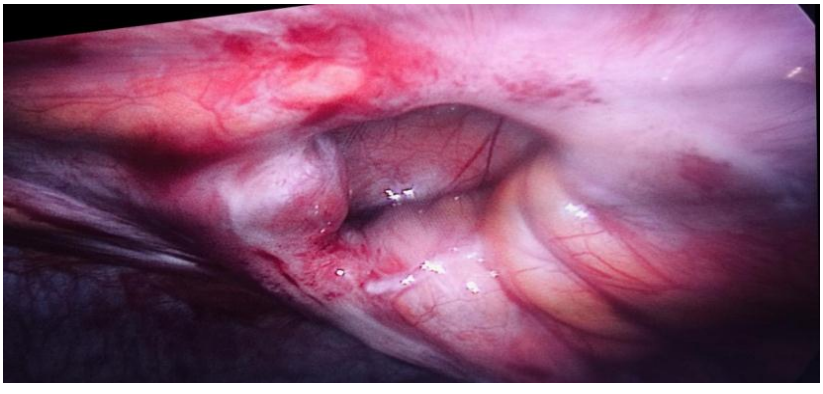

Figure 1: Intra-operative image who reveals the parietal defect.

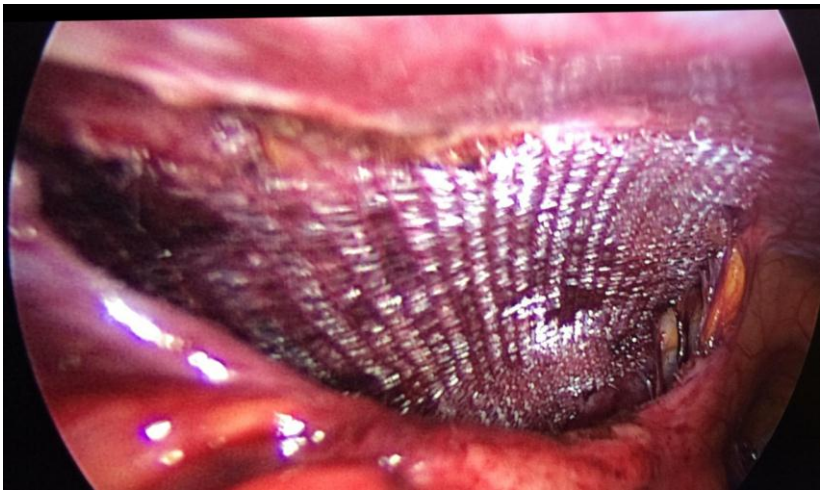

Figure 2: Placement of the mesh after reduction and closure of the collar.

DISCUSSION

Abdominal pain in the pregnant patient can be separated into obstetrical and non- obtetrical causes.[4] The most common non-obstetrical surgical emergencies in pregnancy are acute appendicitis, cholecystitis and intestinal obstruction.[5] Other conditions that may require operations during pregnancy include ovarian cysts, masses, or torsion, splenic disorders, complications of inflammatory bowel diseases. In 1999, Lachman et al[6] reported on a series of pregnant women undergoing 518 surgical procedures. They found the cholecystectomy (45%) to be the most common surgical procedure performed during pregnancy followed by adnexal surgery (34%) and appendectomy (15%).[7]

Pregnancy is no longer considered an absolute contraindication to laparoscopic procedures. Laparoscopy is now being used cautiously for non-obstetrical urgent indications despite potential adverse complications.[8] Some argued that laparoscopy was contraindicated during pregnancy due to concerns for uterine injury and fetal perfusion.[9] There are many advantages of using laparoscopy in the pregnant patient, including decreased fetal respiratory depression due to diminished postoperative narcotic requirements.[10] Potential concerns associated with pregnancy laparoscopic surgery include limited surgical manipulations, perforation of gravid uterus and hypercapnia.[11,12]

A literature search was performed in PubMed. The search includes all meta-analyses, case series and guidelines on abdominal surgery during pregnancy published between 1994 and 2019. Obstetric procedures were excluded. We did not find another case of epigastric hernia cured by laparoscopy in literature.

When radiographic studies are required for the diagnostic, the ultrasound is considered safe, as no adverse effects to mother or fetus have been reported. It is the initial radiographic choice.[13–17] In our case, the abdominal pain and palpation of the painful hernia neck prompted us to perform an ultrasound which revealed the bowel and omentum content. When the bowel is present in a hernia there is always a risk of incarceration and strangulation, which can be very dangerous in case of bowel necrosis and perforation for the fetus and the mother. This complication can be life-threatening and in our opinion the delay is not justified.

The laparoscopy can be performed in any trimester of pregnancy. Historical recommendations were to delay surgery until the second trimester in order to reduce the rates of spontaneous abortion and preterm labor.[18] Often the management of the parietal surgery is postponed to several months after delivery for the maternal-fetal risks associated with surgery in general and for the disappearance of physiological changes associated with pregnancy.[19] Recent literature has shown that pregnant patients may undergo laparoscopic surgery safely during any trimester without any increased risk to the mother or fetus.[20]

The initial abdominal access can be safely accomplished with an open (Hasson) technique, Veress needle, or optical trocar, if the location is adjusted according to fundal height and previous incisions. There has been much debate regarding abdominal access in the pregnant patient, with preferences toward either a Hasson technique or Veress needle. The concern for use of the Veress needle has been based largely on concerns for injury to the uterus or other intra-abdominal organs.[21,22] The risk of preterm labor after laparoscopy compared with open surgery has been discussed in many reports of the relative safety of laparoscopy in pregnancy[23,24,25] The risk of fetal loss has become the top priority in many studies of the relative safety of laparoscopy in pregnancy.[24,26] The main consideration is that laparoscopy requires carbon dioxide to obtain the pneumoperitoneum.[27] The potential for adverse consequences from CO2 insufflation in the pregnant patient has led to apprehension over its use. As such, some authors advocate gasless laparoscopy in pregnant patients, but this technique not been widely adopted.[28–36] Increased intra abdominal pressure can lead to reduced uterine blood flow and maternal venous return, resulting in the fetal intrauterine hypoxia.[37] The pregnant patient's diaphragm is upwardly displaced by the growing fetus, which results in decreased residual lung volume and functional residual capacity.[38] Upward displacement of the diaphragm by pneumoperitoneum is more worrisome in a pregnant patient with existing restrictive pulmonary physiology. Some have recommended intra-

abdominal insufflation pressures be maintained at less than 12 mmHg to avoid worsening pulmonary physiology in gravid women.[39] Others have argued that insufflation less than 12 mmHg may not provide adequate visualization of the intra-abdominal cavity.[40] Pressures of 15 mmHg have been used during laparoscopy in pregnant patients without increasing adverse outcomes to the patient or her fetus.[40] Some authors have proposed the use of gasless laparoscopy. In the authors' previous experience and others, its use may be inferior to traditional insufflation because of decreased visualization of the cul de sac possibly resulting in longer operating times and increased risk for complications.[41,42]

Postponing necessary operations until after parturition may, in some cases, increase the rates of complications for mother and fetus.[43–46] It has been suggested that the gestational age limit for successful completion of laparoscopic surgery during pregnancy is 26–28 weeks.[47] This has been refuted by several studies in which laparoscopic cholecystectomy and appendectomy have been successfully performed late in the third trimester.[40,48-49] Although laparoscopy can be performed safely in pregnancy with good fetal and maternal outcomes, the long-term effects to the children have not been well studied. One study evaluated 11 children from 1 to 8 years old and found no growth or developmental delay.[50] Benefits of laparoscopy during pregnancy appear similar to those benefits in non pregnant patients, including less pain, less postoperative ileus, decreased length of hospital stay, and faster return to work.[24]

While intra-operative fetal heart rate monitoring was once thought to be the most accurate method to detect fetal distress during laparoscopy, no intraoperative fetal heart rate abnormalities have been reported in the literature.[43,51] This has led some to recommend preoperative and postoperative monitoring of the fetal heart rate with no increased fetal morbidity having been reported.[40] Maternal and fetal monitoring should be part of any pregnant patient's care and should continue throughout her hospitalization, but the timing of a formal obstetric consultation will vary based on availability of the consultant and the severity of the patient's condition. Delaying the treatment of an acute abdominal process to obtain such a consultation should be avoided as treatment delay may increase the risk of morbidity and mortality to the mother and fetus[52] Clinical, ultrasound and patient and fetal clinical monitoring was performed in our patient before, during and after the surgery. The postoperative consequences were simple for our patient. Minor analgesics were administered for the pain at the surgical site, she presented no post-operative complications. Threatened

preterm labor can be successfully managed with tocolytic therapy. The specific agent and indications for the use of tocolytics should be individualized and based on the recommendation of an obstetrician.[38,53–55] For our patient there was a tocolysis scheme set up by the obstetrics department before and after the surgery in the recovery room to avoid the contraction associated with the surgical procedure.

CONCLUSION

Pregnancy is no longer considered an absolute contraindication to laparoscopic procedures. Parietal hernias are frequent reasons for surgical consultations. Its clinical polymorphism may lead to a diagnostic delay explaining the high rate of complicated occlusion. Proper laparoscopy and monitoring of obstetric parameters before, during and after the procedure allows a good maternal-fetal prognosis. In selected cases, the parietal hernia surgical treatment during the pregnancy is justified.

REFERENCES

1. Fatum M, Rojansky N. Laparoscopic surgery during pregnancy. Obstet Gynecol Surv, 2001; 56: 50– 9.
2. Nezhat FR, Tazuke S, Nezhat CH, Seidman DS, Phillips DR, Nezhat CR. Laparoscopy during pregnancy: a literature review. J Soc Laparoendosc Surg, 1997; 1: 17– 27.
3. Bisharah M, Tulandi T. Laparoscopic surgery in pregnancy. Clin Obstet Gynecol, 2003; 46: 92–7. Kammerer WS Nonobstetric surgery during pregnancy. Med Clin North Am, 1979; 63: 1157–1164.
4. Levine D. Imaging of pelvic pain in the first trimester of pregnancy. Radiol Clin North Am, 2006; 44: 863–877.
5. Kammerer WS Nonobstetric surgery during pregnancy. Med Clin North Am, 1979; 63: 1157–1164.
6. Lachman E, Schienfeld A, Voss E, et al. Pregnancy and laparoscopic surgery. J Am Assoc Gynecol Laparosc, 1999; 6: 347 –51.
7. Hill LM, Johnson CE, Lee RA. Cholecystectomy in pregnancy. Obstet Gynecol, 1975; 46: 291– 3.
8. Garzarelli S, Mazuca N. One laparoscopic puncture for treatment of ovarian cysts with adnexal torsion in early pregnancy. A report of two cases. J Reprod Med., 1994; 39: 985–986.

9. Fallon WF Jr, Newman JS, Fallon GL, Malangoni MA The surgical management of intra-abdominal inflammatory conditions during pregnancy. Surg Clin North Am, 1995; 75: 15–31.
10. Pucci RO, Seed RW Case report of laparoscopic cholecystectomy in the third trimester of pregnancy. Am J Obstet Gynecol, 1991; 165: 401–402.
11. Oguri H, Taniguchi K, Fukaya T. Gasless laparoscopic management of ovarian cysts during pregnancy. Int J Gynaecol Obstet, 2005; 91: 258–259.
12. Lee YY, Kim TJ, Choi CH, Lee JW, Kim BG, Bae DS Factors influencing the choice of laparoscopy or laparotomy in pregnant women with presumptive benign ovarian tumors. Int J Gynaecol Obstet, 2010; 108: 12–15.
13. Eyvazzadeh AD, Levine D. Imaging of pelvic pain in the first trimester of pregnancy. Radiol Clin North Am, 2006; 44: 863–877.
14. Kennedy A. Assessment of acute abdominal pain in the pregnant patient. Semin Ultrasound CT MR, 2000; 21: 64–77.
15. Toppenberg KS, Hill DA, Miller DP Safety of radiographic imaging during pregnancy. Am Fam Physician, 1999; 59: 1813–1818, 1820.
16. Moore C, Promes SB Ultrasound in pregnancy. Emerg Med Clin North Am, 2004; 22: 697–722.
17. Lim HK, Bae SH, Seo GS Diagnosis of acute appendicitis in pregnant women: value of sonography. AJR Am J Roentgenol, 1992; 159: 539–542.
18. Swisher SG, Hunt KK, Schmit PJ, Hiyama DT, Bennion RS, Thompson JE. Management of pancreatitis complicating pregnancy. Am Surg, 1994; 60: 759– 62.
19. Scott LD. Gallstone disease and pancreatitis in pregnancy. Gastroenterol Clin North Am, 1992; 21: 803–15.
20. Westerband A, Van De Water A, Amzallag M, Lebowitz PW, Nwasokwa ON, Chardavoyne R et al. Cardiovascular changes during laparoscopic cholecystectomy. Surg Gynecol Obstet, 1992; 175: 535–538.
21. Friedman JD, Ramsey PS, Ramin KD, Berry C. Pneumoamnion and pregnancy loss after second-trimester laparoscopic surgery. Obstet Gynecol, 2002; 99: 512–513.
22. Halpern NB Laparoscopic cholecystectomy in pregnancy: a review of published experiences and clinical considerations. Semin Laparosc Surg, 1998; 5: 129–134.
23. Oelsner G, Stockheim D, Soriano D, Goldenberg M, Seidman DS, Cohen SB et al Pregnancy outcome after laparoscopy or laparotomy in pregnancy. J Am Assoc Gynecol Laparosc, 2003; 10: 200–204 review. JSLS 1: 7–27.

24. Lin YH, Hwang JL, Huang LW, Seow KM Successful laparoscopic management of a huge ovarian tumor in the 27th week of pregnancy. A case report. J Reprod Med., 2003; 48: 834–836.
25. Yamada H, Ohki H, Fujimoto K, Okutsu Y. Laparoscopic ovarian cystectomy with abdominal wall lift during pregnancy under combined spinal-epidural anesthesia. Masui, 2004; 53: 1155–1158.
26. Nezhat FR, Tazuke S, Nezhat CH, Seidman DS, Phillips DR, Nezhat CR. Laparoscopy during pregnancy: a literature, 1997.
27. Curet MJ, Vogt DA, Schob O, Qualls C, Izquierdo LA, Zucker KA Effects of CO2 pneumoperitoneum in pregnant ewes. J Surg Res., 1996; 63: 339–344.
28. Akira S, Yamanaka A, Ishihara T, Takeshita T, Araki T. Gasless laparoscopic ovarian cystectomy during pregnancy: comparison with laparotomy. Am J Obstet Gynecol, 1999; 180: 554–557.
29. Murakami T, Noda T, Okamura C, Terada Y, Morito Y, Okamura K. Cul-de-sac packing with a metreurynter in gasless laparoscopic cystectomy during pregnancy. J Am Assoc Gynecol Laparosc, 2003; 10: 421–423.
30. Schmidt T, Nawroth F, Foth D, Rein DT, Romer T, Mallmann P. Gasless laparoscopy as an option for conservative therapy of adnexal pedical torsion with twin pregnancy. J Am Assoc Gynecol Laparosc, 2001; 8: 621–622.
31. Romer T, Bojahr B, Schwesinger G. Treatment of a torque hematosalpinx in the thirteenth week of pregnancy using gasless laparoscopy. J Am Assoc Gynecol Laparosc, 2002; 9: 89–92.
32. Melgrati L, Damiani A, Franzoni G, Marziali M, Sesti F. Isobaric (gasless) laparoscopic myomectomy during pregnancy. J Minim Invasive Gynecol, 2005; 12: 379–381.
33. Matsumoto T, Nishi M, Yokota M, Ito M. Laparoscopic treatment of uterine prolapse during pregnancy. Obstet Gynecol, 1999; 93: 849.
34. Oguri H, Taniguchi K, Fukaya T. Gasless laparoscopic management of ovarian cysts during pregnancy. Int J Gynaecol Obstet, 2005; 91: 258–259.
35. Iafrati MD, Yarnell R, Schwaitzberg SD. Gasless laparoscopic cholecystectomy in pregnancy. J Laparoendosc Surg, 1995; 5: 127–130.
36. Fatum M, Rojansky N. Laparoscopic surgery during pregnancy. Obstet Gynecol Surg, 2001; 56: 50–59.
37. Chohan L, Kilpatrick CC Laparoscopy in pregnancy: a literature review. Clin Obstet Gynecol, 2009; 52: 557–569.

38. Hume RF, Killiam AP Maternal physiology. In: Scott JR, KiSaia J, Hammon DB (eds) Obstetrics and gynecology. JB Lippincott, Philadelphia, 1990; 93–100.
39. Malangoni MA Gastrointestinal surgery and pregnancy. Gastroenterol Clin North Am, 2003; 32: 181–200.
40. Rollins MD, Chan KJ, Price RR Laparoscopy for appendicitis and cholelithiasis during pregnancy: a new standard of care. Surg Endosc, 2004; 18(2): 237–241.
41. Hunter JG, Swanstrom L, Thornburg K. Carbon dioxide pneumoperitoneum induces fetal acidosis in a pregnant ewe model. Surg Endosc, 1995; 9: 272–7. [discussion: 277–9].
42. Goldberg JM, Maurer WG. A randomized comparison of gasless laparoscopy and CO2 pneumoperitoneum. Obstet Gynecol, 1997; 90: 416– 20.
43. Glasgow RE, Visser BC, Harris HW, Patti MG, Kilpatrick SJ, Mulvihill SJ. Changing management of gallstone disease during pregnancy. Surg Endosc, 1998; 12: 241–246.
44. Davis A, Katz VL, Cox R. Gallbladder disease in pregnancy. J Reprod Med., 1995; 40: 759–762.
45. Muench J, Albrink M, Serafini F, Rosemurgy A, Carey L, Murr MM Delay in treatment of biliary disease during pregnancy increases morbidity and can be avoided with safe laparoscopic cholecystectomy. Am Surg, 2001; 67: 539–542. (discussion 542–533)
46. Visser BC, Glasgow RE, Mulvihill KK, Mulvihill SJ. Safety and timing of nonobstetric abdominal surgery in pregnancy.Dig Surg, 2001; 18: 409–417.
47. Oelsner G, Stockheim D, Soriano D, Goldenberg M, Seidman DS, Cohen SB, Admon D, Novikov I, Maschiach S, Carp HJ, Anderman S, Ben-Ami M, Ben-Arie A, Hagay Z, Bustan M, Shalev E, Carp H, Gemer O, Golan A, Holzinger M, Beyth Y, Horowitz A, Hamani Y, Keis M, Lavie O, Luxman D, Rojansky N, Taichner G, Yafe C, Zohar S, Bilanca B. Pregnancy outcome after laparoscopy or laparotomy in pregnancy. J Am Assoc Gynecol Laparosc, 2003; 10: 200–204.
48. Geisler JP, Rose SL, Mernitz CS, Warner JL, Hiett AK. Non-gynecologic laparoscopy in second and third trimester pregnancy: obstetric implications. JSLS, 1998; 2: 235–238.
49. Stepp K, Falcone T. Laparoscopy in the second trimester of pregnancy. Obstet Gynecol Clin North Am, 2004; 31: 485–496, vii.
50. Rizzo AG Laparoscopic surgery in pregnancy: long-term follow-up. J Laparoendosc Adv Surg Tech A., 2003; 13: 11–15.
51. Graham G, Baxi L, Tharakan T. Laparoscopic cholecystectomy during pregnancy: a case series and review of the literature. Obstet Gynecol Surg., 1998; 53: 566–574.

52. Sharp HT The acute abdomen during pregnancy. Clin Obstet Gynecol, 2002; 45: 405–413.
53. Berkman ND, Thorp JM Jr, Lohr KN, Carey TS, Hartmann KE, Gavin NI, Hasselblad V, Idicula AE Tocolytic treatment for the management of preterm labor: a review of the evidence. Am J Obstet Gynecol, 2003; 188: 1648–1659.
54. Tan TC, Devendra K, Tan LK, Tan HK Tocolytic treatment for the management of preterm labour: a systematic review. Singapore Med J., 2006; 47: 361–366.
55. Romero R, Sibai BM, Sanchez-Ramos L, Valenzuela GJ, Veille JC, Tabor B, Perry KG, Varner M, Goodwin TM, Lane R, Smith J, Shangold G, Creasy GW An oxytocin receptor antagonist (atosiban) in the treatment of preterm labor: a randomized, double-blind, placebo-controlled trial with tocolytic rescue. Am J Obstet Gynecol, 2000; 182: 1173–1183.