
Interstitial Ectopic Pregnancies: Laparoscopy Vs. Laparotomy

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Abstract

As used in the literature, an interstitial ectopic pregnancy can refer to three different situations. A true interstitial ectopic pregnancy occurs in the Fallopian tube's interstitial or intramural segment. When a woman has a single uterine horn, a bicornuate uterus, or a septate uterus, her ectopic pregnancy is a cornual pregnancy. When an ectopic pregnancy occurs in one of the uterine angles, but outside the Fallopian tube, a rare angular pregnancy has occurred.

In the past, an interstitial pregnancy was managed conservatively until over 12 weeks on the premise that the uterine muscle protected against early rupture. Recently, however, evidence contradicts this belief as early rupture is more common than initially thought. With the advances in laparoscopic surgery, laparoscopy is accomplished with great success. That said, if the physician deems it safer to do laparotomy, patient safety is key to management of an interstitial ectopic pregnancy.

Introduction

Management of ectopic pregnancies has progressed in recent years (1-10). In 1% to 2% of all pregnancies, an ectopic pregnancy occurs (7). Of those ectopic pregnancies, 2% to 4% of them are interstitial (11-24). When an embryo implants in the interstitial or intramural portion of the Fallopian tube, an interstitial ectopic pregnancy has occurred (Figs 1.1-1.5).

In order to manage an interstitial ectopic pregnancy, the physician must assess the patient's stability and whether the ectopic pregnancy has ruptured. For patients who must be immediately diagnosed for reasons such as a positive urine pregnancy test, rebound tenderness, and/or hemodynamic instability, diagnostic laparoscopy is preferred (6). If the ectopic pregnancy has ruptured or the patient is otherwise unstable, diagnosis requires laparotomy (15).

Laparotomy

In the 1800s, laparotomy for a diagnosis of ectopic pregnancy was developed (6) (Figs. 1.2, 1.6, 1.7). Over the last 2 decades, and despite the rise of laparoscopic management, laparotomy with cornual resection or cornuostomy has remained a popular surgical management technique in the following circumstances: (1) for hemodynamically unstable patients; (2) for patients where laparoscopy would be complex (obesity, hemoperitoneum, or multiple dense adhesions); and (3) for patients with physicians uncomfortable with laparoscopy (Figs. 1.8-1.9 (A)-(B)) (9).

Statistical Analysis

In the 1970s and 1980s, laparoscopy began to replace laparotomy because, for most patients, laparoscopy was considered more conservative, more safe, and less costly than open surgery (6) (Figs. 1.3-1.5, 1.10-1.13). A wide variety of hemostatic techniques have been used laparoscopically, including tourniquet purse string suture or endoloop (25) or stay sutures (19), intramyometrial injection of diluted pitressin (Figs. 1.3, 1.4, 1.10 - 1.13) (26, 27), electrocauterization, ultrasonic cutting and coagulating surgical device (harmonic scalpel) and fibrin glue. Additionally, many cases of laparoscopic cornuostomy have been undertaken (17, 26, 28-35) (Figs. 1.11-1.13).

Conclusion

Out of the 312 women with PCOS, 122 cases fulfilled the NCEP and the modified ATP III for the diagnosis of MS making the prevalence of MS among PCOS women to be 39.11%. The prevalence of MS increased significantly with age, BMI, IR and free testosterone plasma level (table II). The most dominant component of MS was the increased waist circumference (>88 cm) being present in 77.87% of PCOS women, followed by lowered

HDL-CL plasma level (75.41%). Hypertriglyceridemia was present in 28.69% and BP elevation was present in only 20.5%. Elevated FPG was detected in only 17.21% of women with PCOS (table III).

Among the studied CV variables, QTc and QTd were significantly higher among the MS PCOS cases compared to non- MS PCOS: significant increase in IVSD, insignificant decrease in EF and increase in cIMT in PCOS cases with MS. On the other hand, the non- MS PCOS cases showed significant prolongation of QTc interval, significant increase in IVSD and significant increase in cIMT (P 0.018) when compared to the healthy control women (table IV). In the present study higher left ventricular mass (LVM), higher left atrium size, and lower LVEF and early to late mitral flow velocity were observed in both groups of PCOS in comparison to control (table IV).

In this manuscript we have addressed the surgical management of interstitial pregnancies. Rupture of an interstitial pregnancy can occur before 12 weeks. Before a rupture occurs, laparoscopic management is the preferred management option. That said, if laparoscopic management is difficult for the clinician, laparotomy is a valid alternative.



Figure 1.1: Left interstitial ectopic pregnancy. Courtesy of Botros Rizk.



Figure 1.2: Interstitial ectopic pregnancy. Reproduced with permission from Rizk B, Owens A, Abuzeid M. Ectopic pregnancy

ultrasonographic diagnosis and management. In: Rizk B, Puschek E (Eds). *Ultrasonography in Gynecology*. Cambridge: Cambridge University Press, in press for 2012. Ch 9.



Figure 1.3: Laparoscopic view of interstitial ectopic pregnancy. Reproduced with permission from Rizk B, Abuzeid M, et al. Ectopic pregnancy. In: Rizk B (Ed.). *Ultrasonography in Reproductive Medicine and Infertility*. Cambridge: Cambridge University Press, 2010. Chapter 31, 264.



Figure 1.4: Laparoscopic view of interstitial ectopic pregnancy after pitressin injection. Reproduced with permission from Rizk B, Abuzeid M, et al. Ectopic pregnancy. In: Rizk B (Ed.). *Ultrasonography in Reproductive Medicine and Infertility*. Cambridge: Cambridge University Press, 2010. Chapter 31, 264.

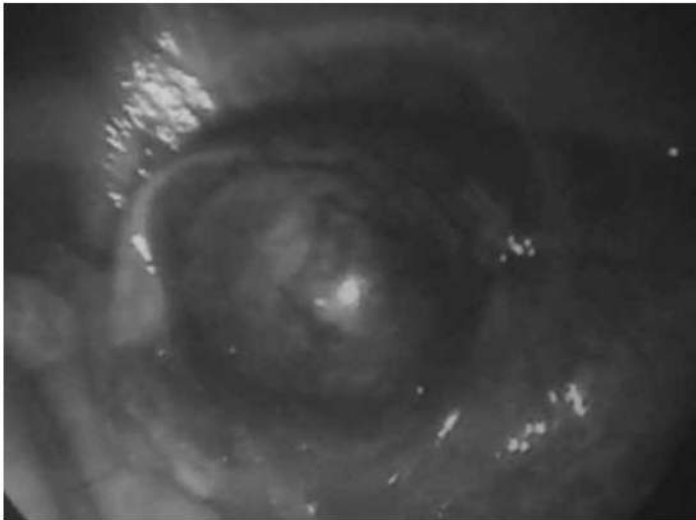


Figure 1.5: Laparoscopic view of interstitial ectopic pregnancy. Reproduced with permission from Rizk B, Abuzeid M, et al. Ectopic pregnancy. In: Rizk B (Ed.). *Ultrasonography in Reproductive Medicine and Infertility*. Cambridge: Cambridge University Press, 2010. Chapter 31, 264.

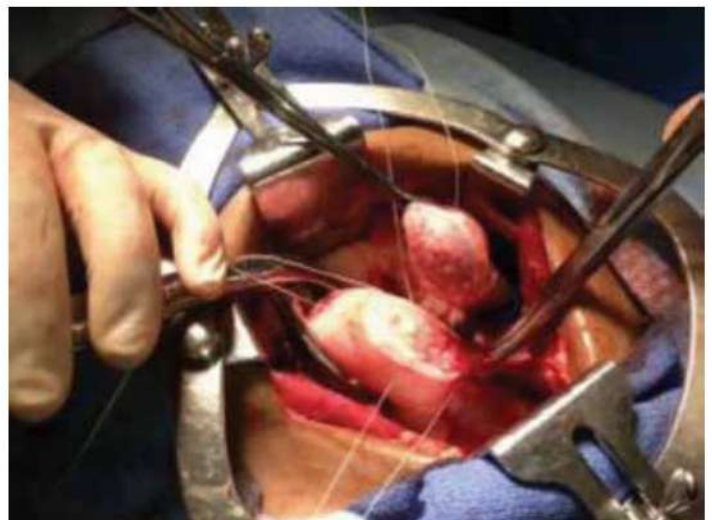
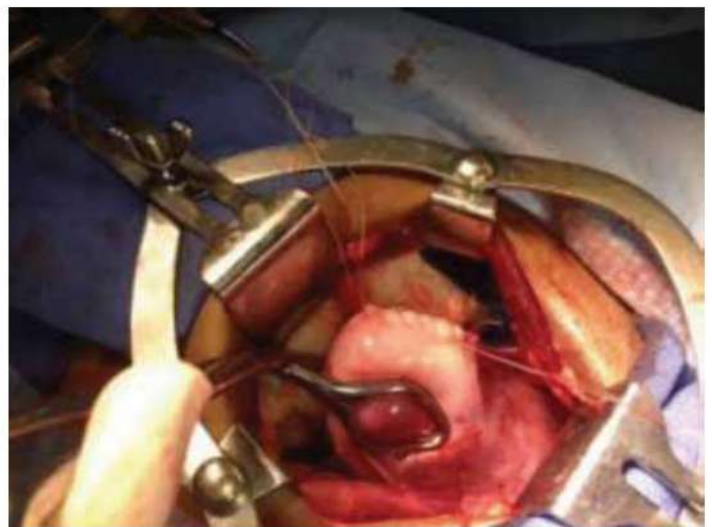
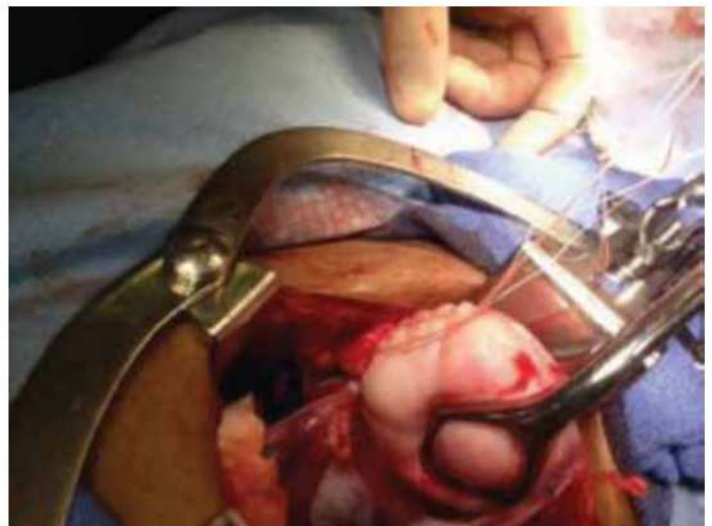


Figure 1.8: Cornual resection of left interstitial pregnancy and stay sutures in place. Courtesy of Botros Rizk.



Figure 1.6: Management of interstitial ectopic pregnancy at laparotomy. Reproduced with permission from Rizk B, Owens A, Abuzeid M. Ectopic pregnancy ultrasonographic diagnosis and management. In: Rizk B, Puscheck E (Eds). *Ultrasonography in Gynecology*. Cambridge: Cambridge University Press, in press for 2012. Ch 9.



Figures 1.9 (A) and (B): Suturing of uterine cornu after removal of left interstitial ectopic pregnancy. Courtesy of Botros Rizk.



Figure 1.7: Management of interstitial ectopic pregnancy at laparotomy. Reproduced with permission from Rizk B, Owens A, Abuzeid M. Ectopic pregnancy ultrasonographic diagnosis and management. In: Rizk B, Puscheck E (Eds). *Ultrasonography in Gynecology*. Cambridge: Cambridge University Press, in press for 2012. Ch 9.



Figure 1.10: Laparoscopic view of right interstitial ectopic pregnancy after pitressin injection. Reproduced with permission from Rizk B, Owens A, Abuzeid M. Ectopic pregnancy ultrasonographic diagnosis and management. In: Rizk B, Puscheck E (Eds). Ultrasonography in Gynecology. Cambridge: Cambridge University Press, in press for 2012. Ch 9.

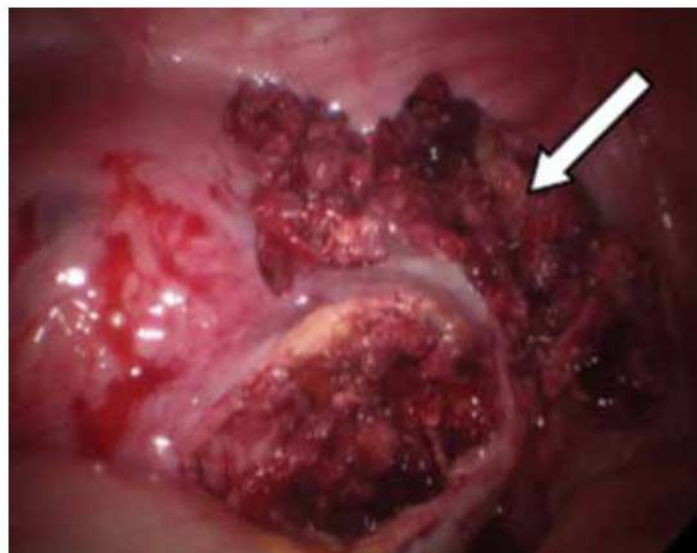


Figure 1.12: Laparoscopic view of cornuostomy in right interstitial ectopic pregnancy after trimming the edges of the incision. Products of conception seen on anterior surface of the right broad ligament (arrow). Reproduced with permission from Rizk B, Owens A, Abuzeid M. Ectopic pregnancy ultrasonographic diagnosis and management. In: Rizk B, Puscheck E (Eds). Ultrasonography in Gynecology. Cambridge: Cambridge University Press, in press for 2012. Ch 9.



Figure 1.11: Laparoscopic view of cornuostomy incision in right interstitial ectopic pregnancy. Reproduced with permission from Rizk B, Owens A, Abuzeid M. Ectopic pregnancy ultrasonographic diagnosis and management. In: Rizk B, Puscheck E (Eds). Ultrasonography in Gynecology. Cambridge: Cambridge University Press, in press for 2012. Ch 9.



Figure 1.13: Laparoscopic view of cornuostomy in right interstitial ectopic pregnancy after repair with a few interrupted figure of 8 sutures with 0-Vicryl sutures. Reproduced with permission from Rizk B, Owens A, Abuzeid M. Ectopic pregnancy ultrasonographic diagnosis and management. In: Rizk B, Puscheck E (Eds). Ultrasonography in Gynecology. Cambridge: Cambridge University Press, in press for 2012. Ch 9.

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