Original Research

The B.S. (Be Safe) Protocol: Avoiding Patient Harm in Diagnosing Heterotopic Pregnancy

Greg J. Marchand, MD, FACS, FICS, FACOG, Katelyn Sainz, MS4, Lisa Rials, MS1, Rachel Pile, MS1

OBJECTIVE: Despite the extremely rare incidence of Heterotopic pregnancy outside of women undergoing assisted reproduction treatments, simultaneous intra and extra-uterine pregnancies are often suspected or unnecessarily included in the differential diagnosis in emergency departments in the United States. This has led to patient injuries, including unnecessary surgical intervention as well as unindicated salpingectomy and salpingotomy. We sought out to devise a simple protocol to aid both the emergency medicine practitioner and gynecologist in the management of a suspected heterotopic pregnancy.

METHODS: We reviewed two recent cases involving heterotopic pregnancy at large emergency departments in Arizona. One case involved a misdiagnosis of heterotopic pregnancy resulting in an unnecessry salpingectomy. The other case involved the diagnosis and treatment of a true heterotopic pregnancy that resulted in a full term delivery after salpingectomy at 8 weeks gesation. We attempted to devise a protocol that would greatly reduce the risk of patient harm while not increasing the morbidity or mortality of a true heterotopic pregnancy.

RESULTS: We developed a protocol for diagnosing Heterotopic pregnancy. The protocol focuses on repeating the ultrasound in cases of truly suspected ectopic pregnancy, while encouraging observation in lieu of surgical intervention in hemodynamically stable patients who have a pregnancy of unknown location.

CONCLUSION: The authors believe the proposed algorithm to be both memorable and useful to the case of suspected heterotopic pregnancy. With further peer validation we would encourage adaptation of our algorithm into educational systems.
DOI: 10.13140/RG.2.2.20329.19046/2

Heterotopic Pregnancy occurs when a pregnancy coexists in the uterus with a pregnancy outside of the uterus. Outside of reproductive technology, incidence of heterotopic pregnancy is extremely rare. An estimation has put incidence of heterotopic pregnancy at approximately 1 in 30,000 pregnancies not associated with reproductive technology. Despite the extremely rare nature of heterotopic pregnancy, radiographic reports, especially ultrasound, often cite the possibility of heterotopic pregnancies when adnexal masses are seen in pregnant women. As a result, ectopic pregnancy may be over diagnosed in the presence of an intrauterine pregnancy, leading to possible catastrophe, including unnecessary salpingectomy as well as unnecessary exposure of an intrauterine pregnancy to anesthesia. Our practice has had two experiences with heterotopic pregnancies in the last 12 months, including one extremely unusual de-novo heterotopic pregnancy. In order to avoid the serious sequela of failing to diagnose a heterotopic pregnancy, or performing an unnecessary surgery, we have come up with a simple, memorable algorithm to guide the practitioner.

In the last 12 months, our private OBGYN practice has had two experiences dealing with heterotopic pregnancy. First was a genuine case of naturally occurring heterotopic pregnancy, when a patient known to our practice presented with intrauterine and extra-uterine pregnancy at 8 weeks gestation. This was dealt with with emergent salpingectomy and patient is still seeing our practitioners for obstetrical care. A second case, which came to the attention of our practice through the peer review process, involves a radiologic diagnosis of a heterotopic pregnancy followed by a surgical partial salpingectomy despite the presence of an intrauterine pregnancy. In the second case the woman unfortunately suffered the loss of the intrauterine pregnancy as well. Our analysis of these two cases has led us to propose a decision making algorithm for this rare and sometimes over diagnosed occurrence. Our proposed algorithm proposes that a true heterotopic pregnancy is a rare enough occurrence to always justify a second ultrasound, and favors observation and hospitalization over surgical intervention in cases where the diagnosis is not clear.

From the Department of Surgery, Marchand OBGYN PLLC, Mesa, Arizona, USA

Accepted for presentation at the World Congress On Obstetrics and Gynecology, July 16th 2018, Bangkok, Thailand.

Corresponding author: Greg J. Marchand, MD, FACS, FICS, FACOG, Accredited Master Surgeron, Department of Surgery, Marchand OBGYN PLLC, 1520 South Dobson, Mesa, Arizona, USA 85202-4708; email: gm@gregmarchandmd.com

Financial Disclosure:
The authors did not report any potential conflicts of interest.

Published Ahead of Presentation, MAY 2018

MATERIALS AND METHODS

We reviewed the two cases in great detail and consider different strategies in order to attempt to propose a step by step algorithm that would prevent any possibility of what we considered the two most important significant catastrophic events. We considered an unnecessary surgery with or without salpingectomy to be one of these events, and the other event was considered to be a failure to diagnose the heterotopic pregnancy leading to rupture of the fallopian tube and the associated sequela and mortality. As a secondary goal we attempted to keep the algorithm as cost effective as possible, without any unnecessary tests or hospitalizations. We feel this algorithm to be indicated in any situation where a heterotopic pregnancy is considered part of the differential diagnosis.

DISCUSSION CONSENSUS

The authors believe the proposed algorithm to be both memorable and useful to the case of suspected heterotopic pregnancy. With further peer validation we would encourage adaptation of our algorithm into educational systems.

REFERENCES

1. Payne, S., Duge, J., Bradbury, W. Ectopic pregnancy concomitant with twin intrauterine pregnancy. A case report. Obstet Gynecol. 1971;38:905–906.
2. Berger, M.J., Taymor, M.L. Simultaneous intrauterine and tubal pregnancies following ovulation induction. Am J Obstet Gynecol. 1972;113:812–813.
3. Heterotopic pregnancy involving the ovary and uterus following ovulation induction: diagnosis and management. Conn Med. 1991;55:195–199.
4. Goldman, G.A., Fisch, B., Ovadia, J., Tadir, Y. Heterotopic pregnancy after assisted reproductive technologies. Obstet Gynecol Surv. 1992;47:217–221.
5. Zalel, Y., Barash, A., Caspi, B., Borenstein, R. Heterotopic pregnancy—an unusual case report following in vitro fertilization and embryo transfer. J Assist Reprod Genet. 1993;10:169–171.
6. Svare, J., Norup, P., Grove Thomsen, S., Hornnes, P., Maigaard, S., Helm, P. et al, Heterotopic pregnancies after in-vitro fertilization and embryo transfer—a Danish survey. Hum Reprod. 1993;8:116–118.
7. Mascarenhas, L., Eliot, B. Severe ovarian hyperstimulation syndrome selective embryo reduction and heterotopic pregnancy. Hum Reprod. 1993;8:1329–1331.

Table 1. Proposed Protocol