ProLife OB|GYNS
AAPLOG American Association of Pro-life Obstetricians & Gynecologists

PRACTICE BULLETIN 9

EVIDENCE DIRECTING PRO-LIFE OBSTETRICIANS & GYNECOLOGISTS

Number 9 March 12, 2020

Ectopic Pregnancy

Ectopic pregnancy prompts many questions for pro-life laypersons and physicians. If the embryo is a human organism and to be respected as a patient, we should gravely consider our response to this relatively common condition. Without doubt, ectopic pregnancy represents a life-threatening condition to the maternal patient, whose life is equally to be defended by the pro-life obstetrician/gynecologist when he or she reviews management options with patients.

Background

Prior Literature

Ectopic pregnancy is defined as any pregnancy outside of the endometrial cavity and represents about 2% of pregnancies.[1] Historically, ectopic pregnancy was the most common cause of maternal death in the first trimester and still constitutes just under 3% of pregnancy-related deaths, usually related to ectopic pregnancy rupture and hemoperitoneum.[2] Preventing death in the maternal patient requires that the embryo either spontaneously or artificially die, or be removed.

Treatments of ectopic pregnancy have provoked ethical analysis among those who view the embryo as a distinct human person, since these treatments preserve one life and lead to the end of another. Ethical discussion of ectopic pregnancy typically focuses on the principle of double effect.[3,4,5,6]

Recently, ectopic pregnancy has surfaced as a topic for discussion among pro-life laypeople and physicians, related in large part to a 2019 bill in Ohio which would require re-implantation of ectopic pregnancies.[7,8,9] There are rare opponents to intervention in ectopic pregnancy, but their small minority opposition is not as mainstream as the opposition to intrauterine pregnancy (IUP) termination ever was.[10] Put another way: there has been no Supreme Court decision necessary for physicians to treat ectopic pregnancies, and physicians accept the need to treat them.

Perhaps unsurprisingly, AAPLOG is frequently asked about ectopic pregnancy treatments since these are medical and surgical treatments to end pregnancies. Are these like abortions? This document proposes an ethical discussion of ectopic

pregnancy from the same scientific grounds as those that lead to opposition to abortion.

Language

There is a disturbing disparity in the language used to discuss ectopic embryos, which are often referred to as "not viable." While "viable" is subject to frequent equivocation,[11] it often refers to whether the embryo or fetus can survive the pregnancy. It is true that ectopic embryos are completely unable to survive pregnancy at this time in history. But "inevitably going to die" is not the same as "not alive now," and we should not dismiss all moral discussion about ectopic embryos simply because of their inability to survive their current situation.

AAPLOG does not believe there is *zero* moral discussion to be had regarding ectopic pregnancy, but is still comfortable with protecting the lives of mothers in the setting of ectopic pregnancy; AAPLOG believes this is consistent with its positions against termination of intrauterine pregnancy by direct action on the bodies of fetuses.[12]

The Principle of Double Effect

A person who views the embryo as an individual organism and believes that its bodily integrity should be respected may have significant questions about taking actions that end in the death of the embryo.

An ethical principle called the principle of double effect can help illuminate important distinctions. The principle of double effect is a way of judging the acceptability of acts that have good and bad effects. For an act with a bad effect to be morally acceptable, it must conform to the four criteria laid out in Box 1.

Box 1. The Principle of Double Effect.

Actions leading to undesirable secondary effects, even if anticipated, can be permissible when all of the following criteria are met:

1. The primary act must be inherently good, or at least morally neutral.
2. The good effect must not be obtained by means of the bad effect.
3. The bad effect must not be intended, only permitted.
4. There must be no other means to obtain the good effect.
5. There must be a proportionately grave reason for permitting the bad effect.

Excerpt from "Double Effect Ethics Statement," used with permission from the Christian Medical and Dental Association.[13]

Surgical intervention in the case of ectopic pregnancy meets the criteria laid out in the principle of double effect.

1) First, the act of removing a fallopian tube or opening a fallopian tube is morally neutral. This is so because these actions may be undertaken outside of pregnancy for good purposes. In fact, if there ever is to be a way of "rescuing" ectopic pregnancies, this may be a necessary step in the process.

2) Second, the good effect (i.e. preserving the mother's life from serious morbidity such as hemorrhage, need for transfusion or open and

more invasive surgery, intensive care, and death) can be the only effect intended.

3) Third, since the removal of the fallopian tube in salpingectomy precedes the death of the fetus (or the resection of the fetus in salpingostomy), the death of the fetus is not the means by which the mother's life is preserved.[14]

4) Fourth, the preservation of the mother's life is proportionate to the expected but undesired bad effect: the end of the fetus's life.

Methotrexate as a non-surgical intervention in ectopic pregnancy and the principle of double effect

There is an important and legitimate debate among well-meaning pro-life physicians on whether methotrexate meets the criteria of the principle of double effect in treating ectopic pregnancy. In fact, there is still discussion about whether methotrexate *needs* to meet these criteria. On one hand, methotrexate is a non-surgical intervention, far superior in the eyes of a treating surgeon to an even minimally invasive procedure. In addition, methotrexate is generally well tolerated and in the case of significant multi-dose regimens, effects can be monitored by simple laboratory tests (quantitative beta human chorionic gonadotropin, complete blood count and a comprehensive metabolic panel).[15] It is well demonstrated to be safe for women and effective at resolving the majority of tubal ectopic pregnancies. Methotrexate has also been studied in other types of ectopics as well.[16,17] Best of all, it has low rates of scarring as well as recurrent ectopic pregnancy after resolution of the index ectopic pregnancy, especially in older women.[18]

On the other hand, methotrexate seems to obtain these good outcomes *by means of* affecting the body of the embryo, which means the principle of double effect does not apply. The trophoblast is part of the embryo; it is not a shared organ.[19] The trophoblast interacts with maternal decidua, but the decidua does not contribute to the trophoblast. The embryo generates the trophoblast in its entirety and the embryo is physically continuous with it. Moreover, the trophoblast is in fact the embryo's most important vital organ; embryos can survive near-impossible conditions if their trophoblasts/placentas are functional. Methotrexate acts directly on the trophoblast, inhibiting its cell division (its main action) and inducing apoptosis.[20] Since methotrexate directly acts to harm an organ of the fetus in order to bring about the end of the pregnancy and the good effects for the mother, there is question in the minds of some pro-life physicians about its use.

However, even institutions with characteristic decisiveness on moral issues, such as the Catholic Church, leave the use of methotrexate to the individuals involved.[21] It is beyond the scope of this document to conclude the matter universally for pro-life physicians.

Clinical Considerations and Recommendations

Q *What are the treatment options for tubal ectopic pregnancy currently in use?*

Treatment options for tubal ectopic pregnancy include:

- expectant management for embryos that appear to be deceased or for pregnancies of unknown location;

- salpingectomy, removal of the fallopian tube with the ectopic pregnancy *in situ*;
- salpingostomy, opening the fallopian tube and allowing egress of the gestation;
- and use of intramuscular methotrexate, either in single-dose or in multi-dose regimens.

Q *What are the ethical implications of salpingectomy?*

Salpingectomy provokes very little debate among physicians; this is recognized as the removal of a maternal organ which threatens harm to the maternal patient. After the tube is *ex vivo*, gas exchange becomes impossible and the embryo eventually dies of acidosis. This type of death is similar to the death the embryo would also experience without any intervention: eventually, the embryo would die from inability to exchange gases due to inadequate blood supply, whether before or after tubal rupture.

Q *What are the ethical implications of salpingostomy?*

Salpingostomy invites slightly more discussion than salpingectomy, since it is possible to remove the embryo and its extra-coelomic membranes in pieces. A pro-life physician endeavors not to dismember a living fetus.

Dismemberment is not an ethical issue if the embryo can be confirmed to be demised. While there are no diagnostic criteria for the viability of ectopic embryos in order to assess whether fetal dismemberment could be acceptable, a system similar to intrauterine pregnancies has been proposed.[22] This needs further study.

Q *What options are available for other types of ectopic pregnancy?*

There are other options available for other ectopics, which are often handled by specialists with a higher volume of experience in the various surgical techniques required such as wedge resection of isthmic ectopic pregnancies or cesarean scar ectopic pregnancies.[23]

Q *Are there options for ectopic pregnancy that allow the embryo to survive?*

At this time in history, there are no surgical or medical options which allow an ectopic embryo to survive. Rarely, an ectopic embryo survives when it is implanted in a very vascular organ, such as the liver or in the uterus outside the endometrial cavity. Investigations are underway to attempt ectopic pregnancy transplant in an animal model.[24]

Summary of Recommendations and Conclusion

The following recommendations are based on good and consistent scientific evidence (Level A):

- Apart from very rare cases, ectopic pregnancy is a dangerous condition that requires that the pregnancy end, either by spontaneous demise of the embryo or by artificial removal of the pregnancy.
- Centuries-old ethical guidelines establish a clear difference between treating an ectopic pregnancy and elective terminations of intrauterine pregnancies.
- Salpingostomy and salpingectomy are safe, commonly performed procedures which can be done in a minimally invasive fashion. Salpingostomy may offer comparable ipsilateral fertility rates to methotrexate.

- Methotrexate acts on the trophoblast of the embryo.
- There are currently no possible re-implantation techniques for ectopic embryos.

The following recommendations are based on good and consistent scientific evidence (Level B):

- "Nonviable" is not a preferred term for ectopic embryos, as it is often indiscriminately applied to mean that an embryo is confirmed dead (i.e. fetal pole with no cardiac motion) or that an embryo cannot survive the pregnancy.
- Complex ectopic pregnancies are best served by multidisciplinary teams with familiarity with the imaging and treatment options available.

The following recommendation is based primarily on consensus and expert opinion (Level C):

There are no diagnostic criteria for the viability of ectopic embryos in order to assess whether fetal dismemberment could be acceptable, but a system similar to intrauterine pregnancies has been proposed. This needs further study.

References

The MEDLINE database, bibliographies of relevant guidelines, and AAPLOG's internal sources were used to compile this document with citations from 1985 to the publication date. Preference was given to work in English, to original research, and to systematic reviews. When high-quality evidence was unavailable, opinions from members of AAPLOG were sought

---

1 Centers for Disease Control and Prevention (CDC). "Current Trends Ectopic pregnancy--United States, 1990-1992." *MMWR Morb Mortal Wkly Rep*. 1995;44:46–8. (Level II-2). Free text: https://www.cdc.gov/mmwr/preview/mmwrhtml/00035709.htm

2 Creanga AA, Syverson C, Seed K, Callaghan WM. "Pregnancy-related mortality in the United States, 2011-2013." *Obstet Gynecol* 2017;130:366–73. DOI: 10.1097/AOG.0000000000002114. Free full text: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5744583/

3 Hager, Samuel E. 2016. "Against Salpingostomy as a Treatment for Ectopic Pregnancy." *The National Catholic Bioethics Quarterly* 16, no. 1: 39–48. DOI: 10.5840/ncbq20161615 Text available at: https://www.pdcnet.org/ncbq/content/ncbq_2016_0016_0001_0039_0048

4 DeGoede, Maria. 2014. "An Argument against the Use of Methotrexate in Ectopic Pregnancies." *The National Catholic Bioethics Quarterly* 14, no. 4: 625–35. DOI: 10.5840/ncbq201414466. Available at: https://www.pdcnet.org/ncbq/content/ncbq_2014_0014_0004_0625_0635

5 Kaczor, Christopher. 2009. "The Ethics of Ectopic Pregnancy: A Critical Reconsideration of Salpingostomy and Methotrexate." *The Linacre Quarterly* 76, no. 3: 265–82. Free full text: https://www.tandfonline.com/doi/pdf/10.1179/002436309803889106

6 Guevin, Benedict M. 2007. "The Use of Methotrexate or Salpingostomy in the Treatment of Tubal Ectopic Pregnancies." *The National Catholic Bioethics Quarterly* 7, no. 2: 249–56. DOI: 10.5840/ncbq20077253. Text available at: https://www.pdcnet.org/ncbq/content/ncbq_2007_0007_0002_0249_0256

7 North, Anna. "This Life-Threatening Pregnancy Complication Is the next Frontier in the Abortion Debate." *Vox*, 11 Sept. 2019. Free full text: https://www.vox.com/2019/9/11/20859034/ectopic-pregnancy-abortion-federalist-intrauterine-ohio-surgery

[8] Boorman, Georgi. "Is Abortion Really Necessary for Treating Ectopic Pregnancies?" *The Federalist*, 19 Sept. 2019. Free full text: https://thefederalist.com/2019/09/09/is-abortion-really-necessary-for-treating-ectopic-pregnancies/.
[9] Tenbarge, Kat. "An Ohio Lawmaker Admitted He Hadn't Researched Ectopic Pregnancies Before Proposing an Abortion Restriction Bill." *Business Insider*, 14 Dec. 2019. Free full text: www.businessinsider.com/ohio-lawmaker-says-he-didnt-research-ectopic-pregnancy-abortion-bill-2019-12.
[10] Osberg, Molly. "The Anti-Abortion Doctor Who Believes Ectopic Pregnancies Can Be 'Reimplanted'." *Jezebel*, 2019. Free full text: https://jezebel.com/the-anti-abortion-doctor-who-believes-ectopic-pregnanci-1838220334.
[11] "Nonviable" can mean "pre-viable," or "before the age of viability," it can mean a fetus of any gestational age with a life-limiting condition, or it can mean an fetus which will inevitably die given the current situation, such as a 14 week fetus half-delivered through the cervix, or an embryo in an ectopic pregnancy.
[12] American Association of Pro-Life Obstetricians & Gynecologists. AAPLOG Practice Bulletin no. 10: "Defining the End of Pregnancy." Available at: www.aaplog.org.
[13] Christian Medical and Dental Association. "Position Statement: Double Effect," 2019. Free full text: https://cmda.org/wp-content/uploads/2020/02/CMDA-Position-Statementsworeferences19.pdf, 40.
[14] Importantly, it is necessary to avoid embryonic dismemberment when resecting products of conception in salpingostomy.
[15] Committee on Practice Bulletins—Gynecology. ACOG Practice Bulletin No. 191: "Tubal Ectopic Pregnancy." *Obstet Gynecol* 2018;131(2):e65–e77. DOI:10.1097/AOG.0000000000002464. Free full text: https://journals.lww.com/greenjournal/fulltext/2018/02000/ACOG_Practice_Bulletin_No__191__Tubal_Ectopic.38.aspx
[16] Maheux-Lacroix S, Li F, Bujold E, Nesbitt-Hawes E, Deans R, Abbott J. "Cesarean Scar Pregnancies: A Systematic Review of Treatment Options." *J Minim Invasive Gynecol* 2017;24(6):915–925. DOI: 10.1016/j.jmig.2017.05.019. Epub 2017 Jul 18. Available at: https://www.jmig.org/article/S1553-4650(17)30313-8/fulltext
[17] Kim MJ, Cha JH, Bae HS, et al. "Therapeutic outcomes of methotrexate injection in unruptured interstitial pregnancy." *Obstet Gynecol Sci* 2017;60(6):571–578. DOI:10.5468/ogs.2017.60.6.571 Epub 2017 Oct 24. Free full text: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5694732/
[18] de Bennetot M, Rabischong B, Aublet-Cuvelier B, Belard F, Fernandez H, Bouyer J, et al. "Fertility following tubal ectopic pregnancy: results of a population-based study." *Fertil Steril* 2012;98:1271–6. DOI: 10.1016/j.fertnstert.2006.11.106 Free full text: https://www.fertstert.org/article/S0015-0282(06)04544-4/fulltext
[19] Sadler, Thomas W., Susan L. Sadler-Redmond, Kathy Tosney, Jan Byrne, and Hytham Imseis. 2015. *Langman's Medical Embryology*. Philadelphia, PA: Wolters Kluwer.
[20] Yan H, Li Z, Yan Z, et al. "Methotrexate Induces Apoptosis of Postpartum Placental Cytotrophoblasts." *Cells Tissues Organs*. 2017;203(4):231–242. DOI:10.1159/000452947. Available at: https://www.karger.com/Article/Abstract/452947
[21] See *Dignitas Personae* and *Donum Vitae*, the most recent, most comprehensive bioethical instructions regarding issues of reproduction issued by the Catholic Church (methotrexate not specifically mentioned).
William Card. Levada, Congregation for the Doctrine of the Faith. Instruction on Certain Bioethical Questions *Dignitas Personae* (20 June 2008). Free full text: http://w2.vatican.va/roman_curia/congregations/cfaith/documents/rc_con_cfaith_doc_20081208_dignitas-personae_en.html
Joseph Card. Ratzinger, Congregation for the Doctrine of the Faith. Instruction on Respect for Human Life in its Origin and on the Dignity of Procreation: Replies to Certain Questions of the Day *Donum Vitae* (22 February 1987). Free full text: http://w2.vatican.va/roman_curia/congregations/cfaith/documents/rc_con_cfaith_doc_19870222_respect-for-human-life_en.html
[22] Condic ML, Harrison D. "Treatment of an Ectopic Pregnancy: An Ethical Reanalysis." *Linacre Q*. 2018;85(3):241–251. DOI:10.1177/0024363918782417. Free full text: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6161225/
[23] Buskmiller C. "The Ethics of Interstitial and Cesarean Scar Ectopic Pregnancies: Four Case Studies and a Review of the Literature." *Linacre Q*. 2018;85(3):252–269. DOI:10.1177/0024363918788858. Free full text: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6161235/
[24] Sammut, Stephen, and Christina Camilleri. "Ectopic Pregnancy Transfer Procedure Study." *Sammut Lab*, 5 Sept. 2019. Available at: https://sammutlab.com/ectopic-transfer-study/