

Ectopic pregnancy after hysterectomy: a review and insight into etiology and prevention

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Objective: To review all reported cases of ectopic pregnancy after hysterectomy.

Design: Medline literature search 1966 to Jan 2009. Search terms included “ectopic pregnancy,” “post hysterectomy ectopic pregnancy,” “pregnancy after hysterectomy.” The bibliography of all retrieved articles was searched for additional sources of data.

Setting: Academic medical center.

Patient(s): Women with ectopic pregnancies following hysterectomy.

Intervention(s): Surgical removal.

Main Outcome Measure(s): To review all reported cases of ectopic pregnancy after hysterectomy.

Result(s): Fifty-six cases of ectopic pregnancies after hysterectomy have been reported. Thirty-one such cases were diagnosed and treated in the immediate period after hysterectomy, “early presentation,” and were pregnancies presumed to have been present at the time the hysterectomy was performed. Twenty-five cases of “late presentation” ectopic pregnancy after hysterectomy have been reported, certainly developing as a result of a communication between the vagina and the peritoneal cavity.

Conclusion(s): Every woman with intact ovaries, despite previous hysterectomy, who presents with abdominal pain, should be screened for pregnancy. “Early presentation” ectopic pregnancies can be prevented with adequate contraception before hysterectomy or by avoiding operating in the periovulatory or luteal phase of the menstrual cycle. “Late presentation” ectopic pregnancies after hysterectomy are likely dependent on the type of hysterectomy performed and the presence or a residual cervix. (Fertil Steril® 2010;94:431–5. ©2010 by American Society for Reproductive Medicine.)

Key Words: Ectopic pregnancy, ectopic pregnancy after hysterectomy, early presentation, late presentation

Ectopic pregnancy after hysterectomy is a very uncommon event. Since first reported in 1895 by Wendler, 55 additional cases have been reported (1–55).

MATERIALS AND METHODS

A search was made of the world’s literature, including multiple languages, using Medline/Pubmed through the United States Library of Medicine, National Institutes of Health, identifying all reported cases of ectopic pregnancy after hysterectomy, and searching the bibliographies of all retrieved articles for additional sources of data.

RESULTS

A total of 56 ectopic pregnancies after hysterectomy have been reported (Table 1). Thirty-one of the 56 cases of ectopic pregnancies after hysterectomy occurred in the immediate

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period after hysterectomy, “early presentation,” and occurred after all types of hysterectomy (1–30). This is presumed to occur because an unrecognized, preclinical pregnancy existed at the time of hysterectomy: a preimplanted fertilized ovum was in transit and confined to the fallopian tube, or sperm was present within the fallopian when the hysterectomy was performed in a periovulatory period, allowing post-operative fertilization and tubal implantation.

Ectopic pregnancy has been reported to occur as late as 12 years after hysterectomy, “late presentation,” and 25 such cases have been reported (31–55) and can only develop because sperm have gained access to the peritoneal cavity through a fistulous tract between the vagina and the peritoneal cavity. Although this has occurred after all types of hysterectomy, 72% follow vaginal hysterectomy (31–34, 37–48, 51, 54). Although the operative narrative for the hysterectomy was seldom available to the physicians treating the ectopic pregnancy after hysterectomy, observations thought to increase the chance for vaginal-to-peritoneal fistula formation include an open vaginal cuff closure technique, vaginal cuff infection or hematoma formation after hysterectomy, vaginal cuff granulation tissue, and a prolapsed fallopian tube (47–51, 53, 54).

TABLE 1**Ectopic pregnancies after hysterectomy.**

Early presentations	Year published	Type of hysterectomy	Time to diagnosis
Knaus (1)	1937	vag	57 d
Girones (2)	1952	abd	53 d
Adams and Schreier (3)	1957	abd	86 d
Clauss (4)	1959	abd	29 d
Smythe (5)	1961	abd	40 d
Graffagnino (6)	1963	vag	59 d
Ledger and Daly (7)	1963	abd	96 d
Moayer (8)	1965	vag	35 d
McDaniel and Gullo (9)	1968	vag	59 d
Wells (10)	1970	vag	39 d
Grunberger (11)	1971	vag	Unknown
Bruder and Vigilante (12)	1973	vag	54 d
Niebyl (13)	1973	vag	79 d
Alexander and Everidge (14)	1979	vag	41 d
Cocks (15)	1980	vag	26 d
Cocks (15)	1980	vag	26 d
Jackson (16)	1980	abd ^a	36 d
Buchan (17)	1680	abd	6 wk
Zdravkovic (18)	1980	abd	5 wk
Marut and Zucker (19)	1981	vag	55 d
Williams (20)	1981	abd	7 wk
Zolli and Rocho (21)	1982	abd	15 wk
Nehry and Loginsky (22)	1982	vag	30 d
Meizner et al. (23)	1982	abd	12 wk
Arora (24)	1983	vag	47 d
Reese et al. (25)	1989	vag	24 d
Gaeta et al. (26)	1993	abd	2 mo
Allen and East (27)	1998	LAVH	6 wk
Weisenfeld and Guido (28)	2003	abd	12 wk
Binder (29)	2003	vag	13 wk
Fader et al. (30)	2007	abd	12 wk
Late presentations	Year published	Type of hysterectomy	Time to diagnosis
Wendler (31)	1895	vag	6 y
Weil (32)	1938	vag	5 y
Frech (33)	1948	vag	9 y
Lyle and Christianson (34)	1955	vag	11 y
Gordy and Otis (35)	1961	abd	14 mo
Zaczek (36)	1963	abd	7 mo
Hanes (37)	1963	vag	9 mo
Kornblatt (38)	1968	vag	12 mo
Sims and Letts (39)	1973	vag	2 y
Sims and Letts (40)	1973	vag	2 y
Schnell and Sinn (41)	1982	vag	Unknown
Heidenreich et al. (42)	1983	vag ^b	1 y
Salmi et al. (43)	1984	vag	3 y
Beuthe and Wemken (44)	1985	vag	Several y
Culpepper (45)	1985	vag	6 y
Casco et al. (46)	1992	vag	5 y
Issacs et al. (47)	1996	vag	8 y
Adeyemo et al. (48)	1999	LAVH	2.5 y
Brown et al. (49)	2002	C-hyst	12 y

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