



Fig. 3. Laparoscopic view of the fallopian tube extracted from the uterine wall lesion.

suggested by the presence of a portion of the fallopian tube in the material removed at the second vacuum aspiration.

This is the second reported case of fallopian tube incarceration, but the first in which the complication was suspected at the time of the

procedure and the injury was repaired shortly after the incarceration. In the first case the patient underwent hysteroscopy and laparoscopy 5 years after the surgical termination [3].

When uterine perforation is suspected based on an abnormal finding in the retrieved material, although rare, tubal incarceration must be considered—especially because it can be relatively asymptomatic. Prompt diagnosis may lead to preservation of the incarcerated tube.

Conflict of interest

No conflicts of interest to declare.

References

- [1] Hakim-Elahi E, Tovell HM, Burnhill MS. Complications of first-trimester abortion: a report of 170, 000 cases. *Obstet Gynecol* 1990;76(1):129–35.
- [2] Kaali SG, Szigetvari IA, Bartfai GS. The frequency and management of uterine perforations during first-trimester abortions. *Am J Obstet Gynecol* 1989;161(2):406–8.
- [3] Deffieux X, Kane A, Faivre E, Gervaise A, Frydman R, Fernandez H. Intrauterine fallopian tube incarceration: an uncommon complication of termination of pregnancy by vacuum aspiration. *Fertil Steril* 2008;90(5):1938–9.

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Administration of a pharmacophysiologic dose of recombinant human chorionic gonadotropin at menses promotes corpus luteum rescue

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Recombinant human chorionic gonadotropin (rhCG) can be administered during the late follicular phase of ovulation induction to promote selection and growth of the most competent follicle cohort [1]. An elevated pregnancy rate was observed recently, following in vitro

fertilization (IVF), when rhCG was administered on the first day of menses in an effort to reduce the recruitment of a secondary follicle cohort [2]. This tactic is aimed at increasing the pregnancy rate and reducing the risk of ovarian hyperstimulation syndrome; however, rescuing a prior corpus luteum, which may result in the premature elevation of progesterone levels during ovulation induction, could be detrimental to IVF outcome by reducing endometrial receptivity and interfering with follicle development [3]. Thus, the present study aimed to evaluate whether rhCG administration on the first day of menses promoted corpus luteum rescue and to determine the frequency of such rescue.

Thirty women—all of whom signed approved Institutional Review Board consent forms—were included in the present retrospective analysis. On their first day of full-flow menstruation, women undergoing ovulation induction with a gonadotropin-releasing hormone (GnRH) antagonist protocol were administered rhCG (250 mg; Ovidrel, Merck-Serono, Brazil). Serum levels of estradiol, progesterone, follicle-stimulating hormone (FSH), and luteinizing hormone (LH) were measured for all participants on their first and third menstrual days (D1 and D3, respectively). Rescued corpus luteum (rCL) was defined as a serum progesterone level of 2 ng/mL or more on D3. Frequencies of rCL and non-rCL were compared via 2-proportion z tests, and differences

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Table 1
Hormone levels on D1 and D3 in the rCL and non-rCL groups following administration of rhCG 250 mg.^a

Hormone	rCL group (n = 19)	non-rCL group (n = 9)	P value
FSH D1, IU/mL	5.66 ± 0.64	4.70 ± 0.59	0.410
FSH D3, IU/mL	6.51 ± 0.88	5.65 ± 0.98	0.597
LH D1, IU/mL	4.28 ± 0.62	7.30 ± 2.61	0.112
LH D3, IU/mL	6.44 ± 0.81	8.95 ± 2.45	0.215
P D1, ng/mL	0.84 ± 0.09	0.61 ± 0.13	0.159
P D3, ng/mL	4.99 ± 0.53	0.81 ± 0.17	<0.010
E2 D1, pg/mL	31.12 ± 3.35	25.50 ± 5.54	0.371
E2 D3, pg/mL	68.91 ± 6.69	35.90 ± 7.38	0.006

Abbreviations: D1, first menstrual day; D3, third menstrual day; E2, estradiol; FSH, follicle-stimulating hormone; LH, luteinizing hormone; P, progesterone; rCL, rescued corpus luteum; rhCG, recombinant human chorionic gonadotropin.

^a Values are given as mean ± standard error unless otherwise indicated.

between the rCL and the non-rCL groups were analyzed, as appropriate, with *t* tests or Mann-Whitney U tests. *P* < 0.05 was considered statistically significant.

Two women were excluded from the analysis because of corpus luteum persistence—as defined by serum progesterone levels of 2 ng/mL or more on D1—before receiving rhCG. Rescued corpus luteum occurred in 19 (67.9%) of the remaining 28 participants, with the other 9 (32.1%) classified as having non-rCL. Serum progesterone and estradiol levels following rhCG administration were significantly greater in the rCL group than in the non-rCL group (*P* < 0.01; Table 1).

Serum levels of FSH and LH did not differ significantly between the groups on D1 or D3.

Rescued corpus luteum was observed in a surprisingly large proportion—approximately two-thirds—of women undergoing ovulation induction with a GnRH antagonist who received a single pharmacophysiologic dose of rhCG on D1. Although rCL was not a universal feature among women who were administered rhCG on D1, efforts to limit its occurrence should be made to prevent the possible harmful effects on IVF outcome of a premature increase in progesterone levels.

Conflict of interest

The authors have no conflicts of interest.

References

- [1] Filicori M, Fazleabas AT, Huhtaniemi I, Licht P, Rao ChV, Tesarik J, et al. Novel concepts of human chorionic gonadotropin: reproductive system interactions and potential in the management of infertility. *Fertil Steril* 2005;84(2):275–84.
- [2] Motta EL, Smith GD, Serafini PC, Coslovsky M, Hassun P, Rocha AM, et al. Human choriongonadotropin prior to controlled ovarian stimulation and in vitro fertilization improves implantation, and pregnancy rates. *J Assist Reprod Genet* 2009;26(6):305–11.
- [3] Kolibianakis EM, Zikopoulos K, Smitz J, Camus M, Tournaye H, Van Steirteghem AC, et al. Elevated progesterone at initiation of stimulation is associated with a lower ongoing pregnancy rate after IVF using GnRH antagonists. *Hum Reprod* 2004;19(7):1525–9.

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Failure of cabergoline to prevent severe ovarian hyperstimulation syndrome in patients with extremely high estradiol levels

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Ovarian hyperstimulation syndrome (OHSS) is a life-threatening complication associated with ovarian stimulation. Among the several

strategies to prevent OHSS, coasting—withholding gonadotropins and delaying administration of human chorionic gonadotropin (hCG)—is the most popular [1]. Although the pathophysiology is not fully understood, vascular endothelial growth factor (VEGF) has been proposed to be the key mediator [2]. Several studies have shown that cabergoline, which antagonizes VEGF effect on vascular permeability, effectively prevented OHSS [2–4]. We report two patients at high risk for OHSS who developed the complication despite undergoing combined treatment with coasting and cabergoline.

A 29-year-old woman underwent in vitro fertilization for tubal factor infertility. After pituitary suppression with 0.5 mg per day of buserelin (Supremon; Hoechst, Frankfurt, Germany) from day 21 of her previous cycle, the patient was stimulated for 7 days with recombinant follicle-stimulating hormone (Gonal-f; Serono, Aubonne, Switzerland) following a dosage regimen of 150 IU for 4 days, 112.5 IU for 2 days, and 75 IU for 1 day. Coasting was initiated to avoid OHSS. Over the 3 days of coasting, serum estradiol levels were 4568 pg/mL, 6555 pg/mL, and 9713 pg/mL, respectively, and 13042 pg/mL on the day of hCG administration. The patient received 5000 IU of hCG (Pregnyl; Organon, Roseland, USA) and oocyte retrieval was performed 36 hours later.

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