

Pregnancy after ovarian wedge resection in a polycystic ovarian patient after laparoscopic ovarian cauterisation

A. Warenik-Szymankiewicz¹, R. Słopień¹, M. Pawlak², S. Sajdak²

¹Department of Gynecological Endocrinology University of Medical Sciences of Poznań, Poznań

²Department of Operative Gynecology University of Medical Sciences of Poznań, Poznań (Poland)

Summary

The authors present a case of a pregnancy after ovarian wedge resection by laparotomy after unsuccessful ovarian drilling. A 28-year-old patient was admitted to the present outpatient clinic because of infertility, secondary amenorrhea, and hirsutism. Three years prior she had undergone laparoscopic ovarian drilling with no effect on menstrual pattern and fertility. After clinical and ultrasonographic examinations, polycystic ovarian syndrome (PCOS) was diagnosed and consequently laparotomy with ovarian wedge resection was decided upon. Six weeks later patient was diagnosed with an early pregnancy.

Key words: Polycystic ovarian syndrome; Ovarian wedge resection; Ovarian drilling.

Introduction

Polycystic ovarian syndrome (PCOS) is a common and ill-understood endocrine disorder with multisystem sequelae. Surgical treatment of PCOS associated with infertility actually consists of laparoscopic ovarian drilling (ovarian electrocautery) which displaces ovarian wedge resection performed by laparoscopy and laparotomy. Ovarian wedge resection, first reported by Stein and Leventhal [1], has been largely abandoned because of its possible consequences, like adhesions formation and ovarian tissue loss which can finally lead to premature ovarian failure. In this paper the authors present a case of a pregnancy after ovarian wedge resection by laparotomy after unsuccessful ovarian drilling.

Case Report

A 20-year-old patient was admitted to the present outpatient clinic because of infertility, secondary amenorrhea, and hirsutism. Telarche was at the age of ten. Menarche was at the age of ten, however menses were irregular (occurring every two to three months) with the last menstruation present at about two months before the admission. The patient was never pregnant before; she tried to become pregnant for about eight years prior to the admission. Three years prior she underwent laparoscopic ovarian drilling with no effect in relation to menstrual pattern and fertility. Physical examination revealed normal body mass index, an increase in hair growth on the abdomen, thorax, upper limb and chin (22 points on the Ferriman-Gallwey scale), and darkening of the hypertrophic labia. Transvaginal ultrasound showed normal uterus, normal endometrium (eight mm), a right ovary measuring 51 x 26 mm with a hyperechoic internal part, and 14 small peripheral follicles (eight to ten mm in diameter),

a left ovary measuring 44 x 27 mm with a hyperechoic internal part and 12 small peripheral follicles (eight to ten mm in diameter). Analytical tests revealed a high LH/FSH ratio with LH 10.03 IU/l [2.4 - 12.6] and FSH 3.68 IU/l [3.5 - 12.5], normal total testosterone serum level of 0.49 ng/ml [0.06 - 0.82] and normal values of all other hormonal test (17 β -estradiol, prolactin, dehydroepiandrosterone sulfate, TSH, thyroxine, and sex hormone binding globulin). After clinical and ultrasonographic examinations, PCOS was diagnosed and consequently laparotomy with ovarian wedge resection was decided upon.

During surgery, both ovaries were in adhesion with posterior part of broad ligament of the uterus. The right ovary was 50 x 30 x 30 mm with multiple scars on the thick capsula and very dense internal part. The left ovary was 60 x 20 x 30 mm with a large scar in the central part. During wedge resection, 35 x 15 x 10 mm from the right ovary and 35 x 15 x 10 mm from the left ovary were cut. The histopathological diagnosis was PCOS.

Postoperatively the patient presented with no complications. Twenty-one days after surgery the patient had spontaneous menstruation and her total testosterone serum concentration was 0.35 ng/ml [0.06 - 0.82]. Six weeks later the patient was diagnosed with an early pregnancy CRL five mm FHR \pm 140. Actually she is in the course of uneventful pregnancy which will hopefully end with a time delivery of a healthy child.

Discussion

Ovarian wedge resection was first reported by Stein and Leventhal in 1939 [1]. Authors reported regular menses in 80% and spontaneous pregnancies in 50% of patients treated with this method [2]. Later the procedure was associated with high percentage of ovarian and periadnexal adhesions [3, 4] and with substantial loss of ovarian tissue and ovarian blood supply, which can finally lead to prema-

Revised manuscript accepted for publication June 8, 2014

ture ovarian failure [5, 6]. This is why the procedure has been largely abandoned and replaced by other procedure - laparoscopic ovarian drilling.

Laparoscopic ovarian drilling has a well documented efficacy in relation to ovulation induction and pregnancy rate. It is established that majority of patients who are clomiphene resistant, ovulated after drilling (56-94%) and that at least half of them obtained a pregnancy (43-84%) [7, 8]. Still there is a group of patient who fail to respond to ovarian drilling (20-30% of patients) [9]. Amer *et al.* established that patients with BMI higher than 35 kg/m², serum testosterone concentration higher than 4.5 nmol/l, free androgen index (testosterone x100/sex hormone binding globulin) more than 15, and duration of infertility longer than three years are poor responders to ovarian drilling [10]. van Wely *et al.* established that early menarche, low LH/FSH ratio, and low serum glucose levels predict failure of laparoscopic ovarian drilling [11].

Laparoscopic ovarian drilling is the leading method in surgical treatment of PCOS. Introduction of effective new treatment options for PCOS (insulin sensitizers [12, 13] and aromatase inhibitors [14, 15] may further diminish the need for surgery in patients with PCOS in the future. The present case showed that there are still patients in which ovarian wedge resection is the most effective method in the treatment of PCOS with infertility.

References

- [1] Leventhal M.L.: "The Stein-Leventhal syndrome". *Am. J. Obstet. Gynecol.*, 1958, 76, 825.
- [2] Stein I.F., Cohen M.R.: "Surgical treatment of bilateral polycystic ovaries". *Am. J. Obstet. Gynecol.*, 1939, 38, 465.
- [3] Portuondo J.A., Melchor J.C., Neyro J.L., Alegre A.: "Periovarian adhesions following ovarian wedge resection or laparoscopic biopsy". *Endoscopy*, 1984, 16, 143.
- [4] Farquhar C., Brown J., Marjoribanks J.: "Laparoscopic drilling by diathermy or laser for ovulation induction in anovulatory polycystic ovary syndrome". *Cochrane Database Syst. Rev.*, 2012, 13, 6.
- [5] Gomel V.: "Reasons for surgical treatment of polycystic ovary syndrome". *J. Gynecol. Obstet. Biol. Reprod. (Paris)*, 2003, 32, S46-9.
- [6] Abu Hashim H., Al-Inany H., De Vos M., Tournaye H.: "Three decades after Gjönnaess's laparoscopic ovarian drilling for treatment of PCOS; what do we know? An evidence-based approach". *Arch. Gynecol. Obstet.*, 2013, 288, 409.
- [7] Yarali H., Bozdag G., Esinler I.: "Surgical management of polycystic ovary syndrome in infertility and assisted reproduction" Rizik B., Garcia-Velasco J., Sallam H., Makrigiannakis A (eds). Cambridge: University Press, 2008.
- [8] Abuelghar W.M., Bayoumy H.A., Ellaithy M.I., Khalil M.S.: "Women with clomiphene citrate resistant polycystic ovarian disease: predictors of spontaneous ovulation after laparoscopic ovarian drilling". *Eur. J. Obstet. Gynecol. Reprod. Biol.*, 2014, 175, 178.
- [9] Panidis D., Tziomalos K., Papadakis E., Katsikis I.: "Infertility treatment in polycystic ovary syndrome: lifestyle interventions, medications and surgery". *Front. Horm. Res.*, 2013, 40, 128.
- [10] Amer S.A., Li T.C., Cooke I.D.: "A prospective dose-finding study of the amount of thermal energy required for laparoscopic ovarian diathermy". *Hum. Reprod.*, 2003, 18, 1693.
- [11] van Wely M., Bayram N., van der Veen F., Bossuyt P.M.: "An economic comparison of a laparoscopic electrocautery strategy and ovulation induction with recombinant FSH in women with clomiphene citrate-resistant polycystic ovary syndrome". *Hum. Reprod.*, 2004, 19, 1741.
- [12] Lord J.M., Flight I.H., Norman R.J.: "Insulin-sensitising drugs (metformin, troglitazone, rosiglitazone, pioglitazone, D-chiro-inositol) for polycystic ovary syndrome". *Cochrane Database Syst. Rev.*, 2003, 3, CD003053.
- [13] Pasquali R., Gambineri A.: "Insulin sensitizers in polycystic ovary syndrome". *Front. Horm. Res.*, 2013, 40, 83.
- [14] Mitwally M.F., Casper R.F.: "Aromatase inhibition reduces gonadotrophin dose required for controlled ovarian stimulation in women with unexplained infertility". *Hum. Reprod.*, 2003, 18, 1588.
- [15] Perales-Puchalt A., Legro R.S.: "Ovulation induction in women with polycystic ovary syndrome". *Steroids*, 2013, 78, 767.

Address reprint requests to:
R. SŁOPIŃ, M.D.
Department of Gynecological Endocrinology
Ul. Polna 33
60-535 Poznań (Poland)
e-mail: asrs@wp.pl