Summary

During the past decades, the surgical approach to ovulation induction in women with polycystic ovary syndrome has been continuously evaluated, criticized, reevaluated, and compared with newer medical treatments. This chapter presents an overview of the different techniques for surgical induction of ovulation, data on efficacy using clinical and metabolic end points, and unresolved questions and issues for future investigation.

Key Words: Anovulation; drilling; infertility; laparoscopy; PCOS.

INTRODUCTION

The new surgical techniques of ovulation induction using laparoscopic access are considered the first choice for the treatment of clomiphene citrate (CC)-resistant women with polycystic ovary syndrome (PCOS) by several scientific societies (1). These are day-surgery procedures and are characterized not only by effectiveness in inducing ovulation and improving reproductive outcomes, but also by few side effects and no need for ongoing monitoring. In addition, ovarian drilling corrects the main endocrine abnormalities associated with PCOS (2), and the benefits achieved appear to be maintained for several years after the procedure.

Despite these favorable aspects, ovarian drilling is an invasive procedure that can be associated with the formation of postoperative pelvic adhesions and other rare complications, including premature ovarian failure.
AN HISTORICAL OVERVIEW

In 1935, Stein and Leventhal first described the surgical treatment of seven women with polycystic ovaries (PCOs) by wedge resection of the ovaries. In all the women, a normal menstrual pattern was restored, and two of them later conceived (3). Subsequently, Stein reported the efficacy of bilateral ovarian wedge resection (OWR) in terms of restoration of menstrual cyclicity and improved fertility in a larger sample of women (4).

In 1961, CC became available for the treatment of anovulatory infertility associated with PCOS (5), simplifying therapy for ovulation induction. Some years later, Kistner (6) stated that the positive results obtained by medical treatment of patients with PCOS were clear, and that surgical approaches should assume a minor role because of their association with adhesion formation, chronic pelvic pain, and iatrogenic infertility. Toaff et al. (7) supported these views in 1976 after performing laparoscopy on seven women with infertility persisting after bilateral OWR, and finding all patients to have extensive tubal and ovarian adhesions. During the course of this decade, surgical approaches to anovulatory infertility were convincingly replaced by developing medical therapies.

In 1972, Cohen et al. (8) reported 21 pregnancies obtained after 51 laparoscopic ovarian biopsies with cauterization using the Palmer forceps, not an easy procedure that seemed to confer no benefit over other methods of inflicting injury on the ovary.

Interest in the surgical approach was restored by the work of Gjonnaess in 1984, who reported ovulation and conception rates of 92 and 80%, respectively, in following laparoscopic electrosurgical drilling of the ovaries in CC-resistant patients (9,10). This was despite the fact that Campo’s results in the previous year (11), obtained on a small sample of 12 patients alone with laparoscopic multiple biopsies, had been less encouraging, and reported ovulation and pregnancy rates of 45 and 42%, respectively. Gjonnaess’s report established the impetus for exploration of surgical approaches to the treatment of this disease.

At present, after the return to a surgical approach for PCOS was reestablished, a large number of methods and techniques have been introduced, and a debate on the optimal surgical procedure persists.

SURGICAL PROCEDURES TO INDUCE OVULATION

Especially, there are two surgical procedures that have been used for treating infertile PCOS patients:

1. Laparotomic/laparoscopic OWR.
2. Laparoscopic ovarian drilling (LOD).

Ovarian Wedge Resection

As noted previously, the technique of OWR was proposed by Stein and Leventhal in 1935, along with the first description of the syndrome. Originally, the procedure was performed by excising approximately one-third of the ovaries by laparotomy (3). In an initial series of 108 patients, restoration of normal menstrual cycles was reported in approx 94% of cases, and conception occurred in approx 87% of those who desired pregnancy (4).

Subsequent studies confirmed the benefits of the procedure, with varying rates of success (mean 58.8% pregnancy rate); however, a high rate of complications was also reported (7,12).