

## Appendix

Table 1. Studies included in scoping review mentioning laparoscopic treatment of OP.

FIRST AUTHOR	STUDY DESIGN	INTERVENTIONS	OUTCOMES	MAIN CONCLUSIONS
Ge [1]	Ultrasonographic classification and clinical analysis	Laparoscopic treatment of ruptured and unruptured OPs	Efficacy of treatment	The most common surgical treatment of OP is laparoscopy with gestational lesion removal or ovarian wedge resection. Adnexectomy can be performed when there are no fertility requirements or when ovarian function cannot be preserved.
Wong [2]	Retrospective analysis	Laparoscopic wedge resection and OP removal	Fertility outcome	Postoperative pregnancy outcomes of women with OP were encouraging, with no reported cases of recurrent OP.
Li [3]	Retrospective case-control study	Laparoscopic ovarian wedge resection	Efficacy of treatment	The most common surgical treatment of OP is laparoscopic OWR of pregnancy lesions with preservation of healthy ovarian tissue. Outcome of subsequent pregnancy is successful, with a low rate of subsequent EP.
Aoyagi [4]	Case report	Laparoscopic ovarian cystectomy of a ruptured ovarian endometrioma coexisting with an unruptured OP	Efficacy of treatment, intra-operative blood loss	Laparoscopy is a useful therapeutic approach when a pre- and intra-operative diagnosis of OP is difficult due to complicated findings.
Shao [5]	Retrospective analysis	Comparing laparoscopy with laparotomy regarding surgical treatment of OP	Operation time, intra-operative blood loss, length of hospital stay, post-operative fever, fertility outcome	Laparoscopic surgery is better than laparotomy for OP treatment. Reproductive prognosis of OP patients is promising.
Wu [8]	Case report	Laparoscopic removal	Efficacy of treatment	Laparoscopic surgery for OP can provide an exact diagnosis and enable prompt surgical intervention, along with healthy ovarian tissue preservation.
Andrade [9]	Case report	Laparoscopic removal and ovarian tissue preservation in a 16-year old female	Efficacy of treatment	Conservative laparoscopic surgery like cystectomy or OWR, is the gold standard approach for young OP patients with desire of fertility preservation.
Aydin [10]	Case report and literature review	Laparoscopic enucleation of OP	Efficacy of treatment	Laparoscopic enucleation should be safely performed in experienced hands for OP treatment, especially for women who wish to preserve their fertility potential.
Samara [11]	Case report	Laparoscopic resection	Efficacy of treatment	As long as the patient is stable, the primary goal of laparoscopic treatment of OP should be healthy ovarian tissue preservation as much as possible.
Gebeh [12]	Case report and literature review	Laparoscopic excision with healthy ovarian tissue preservation	Efficacy of treatment	Use of laparoscopic monopolar diathermy hook for dissecting the OP intact, while preserving the ovary, is easy to learn.

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Pascal [13]	Case report	Laparoscopic removal of OP with ovarian preservation	Efficacy of treatment	Laparoscopic surgical intervention continues to be the cornerstone of both diagnosis and management, especially when medical options are limited or contraindicated.
Seo [14]	Retrospective review	Laparoscopic resection of OP	Efficacy of treatment	Ovarian wedge resection is a conventional method, although, as laparoscopic techniques improve constantly, laparoscopic enucleation of the OP is also preferred.
Solangon [15]	Retrospective case-control study	Laparoscopic treatment OP	Efficacy of treatment	The trend in OP management is moving away from laparotomy and towards laparoscopy. Surgical excision along with ovarian preservation is ideal and OWR is sometimes necessary in more advanced pregnancies, whereas oophorectomy should be reserved as a last resort when faced with uncontrollable bleeding
Tanabe [16]	Case series	2 cases of laparoscopic removal of OP	Efficacy of treatment	Laparoscopic treatment is often of diagnostic significance due to intra-abdominal observation.
Le [17]	Clinical analysis	Laparoscopic ovarian wedge resection	Efficacy of treatment, fertility outcome	1 <sup>st</sup> choice of treatment is laparoscopic surgery with preservation of healthy ovarian tissue even in the case of intra-abdominal hemorrhage. Lower rates of recurrence of EP or infertility and better prognosis of re-pregnancy are achieved thanks to laparoscopic surgery.
Kazal [18]	Case report	Laparoscopic removal of OP in a patient with a levonorgestrel intrauterine system in situ	Efficacy of treatment	In hemodynamically unstable patients conservative laparoscopic approach is considered cornerstone of patient management.
Qing [19]	Case report and literature review	Laparoscopic removal of OP	Efficacy of treatment	Laparoscopy is the gold standard approach for exact diagnosis of OP Laparoscopic surgery is also the ideal choice for OP treatment because it allows for local magnification and is linked with minimal trauma and rapid recovery.
Alkatout [20]	Review	Laparoscopic treatment of different types of EP, including OP	Efficacy of treatment regarding protection of healthy ovarian tissue	Laparoscopic blunt enucleation of the gestational product is the most conservative type of operation for OP because healthy ovarian tissue is protected to the greatest possible extent.
Ren [21]	2 case reports and literature review	Laparoscopic resection	Efficacy of treatment, fertility outcome	Resection of OP with retention of the ovary is a reasonable surgical objective, especially in patients desiring future fertility.

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Ribeiro [22]	Case report	Laparoscopic resection and ovarian tissue preservation	Efficacy of treatment	Minimally invasive surgery with healthy ovarian tissue preservation has become the standard approach to OP, with advantages like shorter hospital stay, shorter recovery time and lower risk of adhesion formation.
Kaur [23]	Case report	Laparoscopic excision of OP with ovarian conservation	Efficacy of treatment, fertility outcome	Ovarian preservation with excision of OP can be achieved using techniques commonly used for ovarian cystectomy. Oophorectomy should only be considered in the event of acute hemorrhage.
Tambimuttu [24]	Case report	Laparoscopic management of hemorrhagic OP with hemorrhagic contralateral corpus luteum	Efficacy of treatment	Laparoscopy provides the ability to manage hemoperitoneum and minimally resect an OP, while still preserving ovarian function.
Maree [25]	Case report	Laparoscopic excision of heterotopic OP and removal of non-viable IUP by curettage	Efficacy of treatment	Laparoscopy should be preferred instead of laparotomy in hemodynamically stable patients due to faster postoperative recovery.
Hong [26]	Case report	Emergent single-port access laparoscopic surgery and resection of heterotopic OP	Efficacy of treatment, safety	Single-port access laparoscopic surgery was proven feasible and safe in a case of heterotopic OP and can be suggested as the first-line treatment option.
Gundabattula [27]	Case report	Laparoscopic resection of a ruptured heterotopic OP following intrauterine insemination	Efficacy of treatment	Laparoscopic management is successful even in the presence of massive hemoperitoneum and is preferred to laparotomy.
Lee [28]	Case report	Laparoscopic removal of bilateral OP with ovarian preservation	Efficacy of treatment	Laparoscopic management is warranted for the protection of ovarian volume and function, as well as for minimizing danger to patient's fertility.
Eom [29]	Case report	Laparoscopic removal	Efficacy of treatment	Laparoscopic surgery is considered effective in providing an exact diagnosis and permitting prompt surgical intervention.
Trindade [30]	Case report	Laparoscopic resection of bilateral EP (left OP & right TP)	Efficacy of treatment	Since the majority of the cases of bilateral EP are identified by laparoscopy, inspection of both adnexa should not be neglected.
Huang [31]	Case report and literature review	Laparoscopic salpingectomy and resection of concurrent OP and TP	Efficacy of treatment, different surgical approaches	Ovarian wedge resection is still the most common procedure for OP. Enucleation of the gestational product is considered a better option for ovarian cortex preservation.

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Melcer [32]	Retrospective study	Laparoscopic ovarian wedge resection	Efficacy of treatment	During the last 3 decades, there is a shift from the traditional laparotomy to laparoscopic management for the majority of OPs.
Feit [33]	Case report and literature review	Laparoscopic ovarian wedge resection	Efficacy of treatment	Laparoscopic removal of OP is successful following IVF even after bilateral salpingectomy.
Ota [34]	Case report	Laparoscopic wedge resection of an extrafollicular OP	Efficacy of treatment	Minimally invasive surgery enables successful hemostasis and fertility preservation.
Hirahara [35]	Case report	Laparoscopic ovarian wedge resection	Efficacy of treatment	Laparoscopy can be a viable treatment option in cases of OP patients with hemodynamic instability.
Ramalho [36]	Case report	Laparoscopic OWR of spontaneous heterotopic OP	Efficacy of treatment	Whenever possible, the laparoscopic approach offers many advantages over laparotomy. Management of heterotopic pregnancy with IUP preservation is still considered an obstetric challenge.
Tsubamoto [37]	Case report and literature review	Laparoscopic ovarian wedge resection	Efficacy of treatment, fertility outcome	Laparoscopic resection of gestational sac and healthy ovarian tissue preservation is the preferred treatment for OP.
Tabassum [38]	Case report and review	Laparoscopic ovarian wedge resection	Efficacy of treatment	In clinically unstable patients or in whom intraoperative diagnosis is not clear, laparoscopy remains the preferred method of treatment.
Ishikawa [39]	Case report	Laparoscopic wedge resection of an OP associated with fresh blastocyst transfer	Efficacy of treatment	Laparoscopic OWR is accepted as a standard treatment for the removal of OP.
Po [40]	Guideline No. 414	Evidence-based algorithm to guide the diagnosis and management of PUL and tubal or non-tubal EP	Clinical recommendation for OP treatment	Clinicians may perform laparoscopic ovarian wedge resection rather than oophorectomy for OPs, if clinically appropriate.
Almahloul [41]	2 case reports & systematic review	Laparoscopic resection compared to laparotomy	Efficacy of treatment	Laparoscopy is the preferred technique to diagnose and treat OPs in women with intra-abdominal bleeding or a suspected ovarian mass, providing also the advantage of minimal risk of ovarian damage and postoperative adhesions.
Alalade [42]	Review	Laparoscopic treatment of OP	Efficacy of treatment	Laparoscopy is required for a definitive diagnosis and should be the gold standard approach. Ovarian preservation is considered cornerstone of management, whereas oophorectomy should only be used in advanced gestation or in the case of uncontrollable bleeding.

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Stanley [43]	Case report	Laparoscopic partial oophorectomy for heterotopic OP	Efficacy of treatment	In case of heterotopic pregnancy and high index of suspicion for a ruptured ectopic component, one should then proceed more quickly with a laparoscopic approach.
Dunphy [44]	Case report	Laparoscopic oophorectomy	Efficacy of treatment	Laparoscopy remains the gold standard for management of OP.
Hasegawa [45]	Case report	Laparoscopic salpingo-oophorectomy	Efficacy of treatment	Laparoscopic resection of ovarian gestation with healthy ovarian tissue preservation is considered the gold standard treatment.
Obeidi [46]	Case report	Laparoscopic partial oophorectomy for molar OP	Efficacy of treatment	Laparoscopic treatment was successful in resecting molar OP after IVF therapy.
M. Sueldo [47]	Case report	Laparoscopic salpingectomy for concurrent OP and ipsilateral TP	Efficacy of treatment	Successful removal of OP, along with uneventful recovery and without compromising fertility.