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Management of endometrial polyps in fertility: British fertility Society policy and practice guideline

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ABSTRACT

Endometrial polyps are localised hyperplastic growths of the endometrial lining that project into the uterine cavity. These growths, composed of glandular and stromal tissue formed around a vascular core, are a common finding in reproductive-aged women and have been associated with infertility and reduced efficacy of assisted conception treatment. This guideline aims to synthesise the evidence available for the assessment and management of endometrial polyps in the context of fertility. The guideline addresses the definition, prevalence, diagnosis, fertility prognosis, and treatment options for endometrial polyps.

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Fertility; polyp;
endometrium; hysteroscopy;
assisted reproduction;
pregnancy

Introduction

For the purposes of this British Fertility Society Practice and Policy guideline, an endometrial polyp is defined as a localised hyperplastic overgrowth of endometrial glands and stroma around a vascular core that projects from the surface of the endometrium (Nijkang et al., 2019). Although there is no accepted classification system for endometrial polyps, they can vary in size and shape and may be attached to the endometrium by a stalk (pedicle) or have a broad base. Histologically, an endometrial polyp consists of three elements: endometrial glands, stroma, and blood vessels. A discreet polyp is a separate entity and is distinguishable on both imaging and hysteroscopic findings from the surrounding endometrial tissue. This differs from the finding of a polypoidal endometrium, which refers to a diffuse or generalised thickening resulting in an irregularity of the endometrial lining within the uterus. Both conditions may have clinical implications, and their management may involve different approaches depending on the underlying causes and symptoms. Studies such as ultrasound and hysteroscopy are often used to diagnose and differentiate between discreet endometrial polyps and a polypoidal endometrium. For this guideline, we will be addressing the management of discreet endometrial polyps and polypoidal endometrium, in the context of fertility.

The prevalence of endometrial polyps has been estimated by population studies and therefore varies according to the demographic characteristics of the cohorts studied as well as the clinical presentation and diagnostic methods used for polyp detection. Polyps affect an estimated 7.8% to 21.9% of women presenting with abnormal uterine bleeding (Djordjevic et al., 2008; Dreisler et al., 2009). In asymptomatic premenopausal women, the prevalence of polyps is estimated to be 12.1% (Lieng et al., 2009), rising to up to 70.0% in asymptomatic postmenopausal women (Schmidt et al., 2009). The prevalence of endometrial polyps in women with infertility has been assessed in two large studies using hysteroscopy for

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diagnosis. In one study of 1,000 participants undergoing hysteroscopy before in vitro fertilisation (IVF), the prevalence of endometrial polyps was found to be 32.0% (Hinckley & Milki, 2004). In contrast, a separate study of 678 asymptomatic women with normal transvaginal ultrasound results undergoing hysteroscopy prior to IVF reported a prevalence of 6.0% (Fatemi et al., 2010).

The natural history of endometrial polyps varies between studies in terms of both growth rates as well as spontaneous regression. A retrospective cohort study of 112 women with an endometrial polyp managed expectantly showed a median annual polyp growth rate of 1.0% (interquartile range, −6.5% to 14.3%) (Wong et al., 2017). Complete polyp regression was seen in 6.3% (95% confidence interval [CI], 1.8% to 10.8%) of the cohort within a 28-month follow-up period. Spontaneous regression appeared to occur more frequently in premenopausal women ($p = 0.016$); however, this difference did not reach statistical significance after correction for multiple confounders. Another cross-sectional study used repeat saline infusion sonography to assess polyps in 31 women aged 45 to 50 years. A 12-month follow up reported a spontaneous regression rate of 27.0%, with regression being more likely in polyps measuring <10mm (Lieng et al., 2009).

Several clinical risk factors have been identified for the development of endometrial polyps.

Age

Advancing age has been shown to be associated with an increased polyp risk, with one study finding that for women below the age of 30 years, the prevalence was 0.9% ($p < 0.005$) (Dreisler et al., 2009). In a retrospective cohort study of 134 women with polyps where a univariable logistic analysis was performed, the presence of polyps was associated with advancing age, menopause, hypertension and obesity. However, when multivariable logistic regression was performed, these associations became uncertain except for the impact of advancing age (OR 1.05, 95% CI 1.02–1.07, $p < 0.001$) (Nappi et al., 2009).

Body mass index

A case-control study of 202 participants noted that the mean body mass index (BMI) of women with polyps was significantly greater than those without polyps. The authors concluded that obesity was an independent risk factor for the development of endometrial polyps ($p < 0.02$) (Serhat et al., 2014).

Polycystic ovary syndrome

One study assessed 49 women with polycystic ovary syndrome (PCOS) to determine the prevalence of endometrial polyps compared to women without PCOS. In the PCOS group, 26.5% (13 of 49 studied women) were demonstrated to have an endometrial polyp, compared to 9.6% (3 of 31 women) of the controls ($p < 0.05$) (Sanchez et al., 2012).

Hypertension

Hypertension was found to be another independent risk factor for endometrial polyps in a case-control study comparing 250 women with polyps to 256 women with a normal endometrial cavity. Hypertension was more prevalent in participants with polyps (34/250 [13.6%] versus 15/256 [5.9%], $p < 0.05$) (Hassa et al., 2012).

Given that similar prevalences have been observed in asymptomatic premenopausal women and women with infertility, it is challenging to quantify the extent to which endometrial polyps play a role in the pathogenesis of infertility. Despite this, various hypotheses have been put forth to explain the possible detrimental effect that a polyp may have on fertility potential and miscarriage risk. Successful implantation results from a series of complex interactions between the decidualised endometrium and the embryo. Structural abnormalities, such as endometrial polyps, can potentially impede this process by interfering with sperm and embryo transport within the uterine cavity, as well as disrupting endometrial architecture involved in implantation. Alternatively, there may be an exaggerated inflammatory response because of the polyp, altering receptivity on a molecular level (Raz et al., 2021). A study by Özbey et al.

(2025) has shown that changes in gene expression which cause dysregulation of key receptivity markers for Prokineticin, may also impair implantation. Prokineticin is essential for preparing the endometrium for implantation, by angiogenesis, vascular remodelling and immune regulation (Özbey et al., 2025). One retrospective study including 394 cases of hysteroscopy performed for infertility noted that the incidence of chronic endometritis was twice as common in cases where an endometrial polyp was seen (67.6%) as compared to the cases without a polyp (46.3%) ($p < 0.05$) (Vaduva et al., 2023).

Although both endometrial polyps and endometrial hyperplasia are conditions that result in abnormal development within the endometrium, they have distinct characteristics and implications. Endometrial polyps and hyperplasia can occur together, particularly in postmenopausal women. Hyperplasia, either complex or atypical, can also be found within endometrial polyps. It is not always clear if the hyperplasia is confined to the polyp or involves the surrounding endometrium. An observational study sought to address this question by examining 694 patients who underwent hysteroscopic removal of polyps as well as 2 biopsies of the endometrium sampled away from the polyp (Rahimi et al., 2009).

As part of the analysis, the weight of each polyp was determined. Multivariable logistic regression analysis was utilised to examine factors associated with endometrial hyperplasia with and without atypia on the accompanying endometrial biopsies. Overall, 18.0% of women had hyperplasia without atypia and 7.3% had atypia (with simple/complex hyperplasia) despite a hysteroscopically unremarkable endometrium. In post-menopausal women, 21.6% had hyperplasia without atypia, 12.0% atypia, and 1.2% adenocarcinoma on the sampled endometrium. By multivariable analysis, postmenopausal women with larger polyps, defined as weighing 1 g or more, had a 3.6-fold higher likelihood of atypia (odds ratio 3.6; 95% CI 1.3–10.3). In pre-menopausal women, the likelihood of atypia was significantly associated with an age above 40 years. The group concluded that particularly in women with higher-risk characteristics, polypectomy should be combined with a histopathologic evaluation of the background endometrium. In the context of endometrial polyps identified as part of subfertility investigations, consideration should be given to the co-existence of other endometrial pathology, particularly in older women as well as those with larger polyps i.e. weighing more than 1 g at macroscopic assessment.

While most endometrial polyps are benign, a small percentage may even show malignant changes. The risk of malignancy increases with age, particularly in postmenopausal women, and is associated with symptoms including abnormal uterine bleeding (Djordjevic et al., 2008). A systematic review that aimed to quantify the prevalence of hyperplasia and cancer in polyps in women with postmenopausal bleeding, concluded that the pooled estimate of prevalence of hyperplasia and cancer was 9.0% (95% confidence interval: 6.5%–11.5%) (Ghoubara et al., 2019). A systematic review conducted to estimate the prevalence of premalignant and malignant lesions in women undergoing hysteroscopic polypectomy, reported on data from 51 studies totalling 35,345 women (Uglietti et al., 2019). The prevalence of malignant polyps was 2.7% (95% CI 2.6–2.9) with very high heterogeneity among studies. The rates were lower for premenopausal women (1.1%) than post-menopausal women (4.9%) and the difference was statistically significant ($p < 0.0001$). The risk of malignancy was higher among women with symptomatic vaginal bleeding (5.1%) compared with asymptomatic women (1.9%) ($p < 0.001$) regardless of menopausal status.

Materials and methods

A search of online databases (PUBMED/MEDLINE, SCOPUS, EMBASE, CENTRAL, DARE) was performed to identify studies published up to May 2025 relevant to the investigation and management of endometrial polyps. A further search up to December 2025 was undertaken to capture new evidence before publication. The search was carried out using both 'AND' and 'OR' medical search headings and keywords including endometrial polyps, intrauterine pathology, polypoidal endometrium, infertility, assisted reproductive techniques, in vitro fertilisation (IVF), endometrial factors and uterine factors.

Additional studies were identified through previous experience of the authors, reference lists of the studies obtained by search and by discussion with experts in the field. Only studies in the English language were included. In total, 30 studies were identified and reviewed. The list of topics to consider under investigations and management of endometrial polyps was finalised through consensus between the authors.

Table 1. Grading of recommendations. The grading of recommendations is based on the Royal College of Obstetricians and Gynaecologists (RCOG) Green-top Guideline methodology (RCOG 2025).

Level of evidence	Description	Grade of recommendation	Evidence base
1++	High quality meta analyses, systematic reviews of RCT's or RCT's with very low bias	A	Evidence derived from high quality systematic reviews or randomised controlled trials with very low risk of bias rated 1++ or 1+
1+	Well conducted meta-analyses, systematic reviews of RCT's or RCT's with low risk of bias	B	Evidence from well-conducted clinical studies with low risk of bias rated 2++, or extrapolated evidence from high-quality randomised controlled trials rated 1++ or 1+
1–	Meta-analyses, systematic reviews of RCT's with a high risk of bias	C	Evidence from observational studies rated 2+ or extrapolated evidence from higher-quality studies rated 2++
2++	High quality systematic reviews of cohort or case-control studies, or high quality cohort/case-control studies with very low risk of confounding or bias	D	Evidence from non-analytical studies such as case reports, case series rated 3 or from expert opinion rated 4.
2+	Well conducted cohort of case control studies with low risk of confounding or bias	Good practice point (GPP)	Guidance based on the clinical experience and consensus of the guideline development group where formal evidence is lacking
2–	Cohort of case control-studies with high risk of confounding or bias		
3	Non analytical studies e.g. case reports, case series		
4	Expert opinion		

The final selection of papers was approved by all the authors and the evidence graded using the Royal College of Obstetricians and Gynaecologists (RCOG) guidance format (Royal College of Obstetricians & Gynaecologists, 2025) as seen in Table 1. The evidence was scrutinised by all authors. All authors contributed to the content.

Summary of recommendations

- 2D Transvaginal scanning provides reliable information for the detection of endometrial polyps and should be the investigation of choice where available. It should ideally be carried out during the early proliferative phase of the menstrual cycle. (Grade of recommendation B)
- Colour Doppler, 3D imaging and saline infusion sonography increase the diagnostic accuracy of transvaginal ultrasound to diagnose endometrial polyps. (Grade of recommendation C)
- Diagnostic hysteroscopy is the gold standard for identifying polyps, however it should not be considered first-line for the diagnosis of endometrial polyps in the absence of risk factors (e.g., intermenstrual bleeding, obesity). (Grade of recommendation B)
- In a population with subfertility wishing to continue trying for natural conception, polypectomy can be considered because it may improve pregnancy outcomes, although there is no RCT data to support this. (Grade of recommendation B)
- In women undergoing ovulation induction/intrauterine insemination, polypectomy can be considered as it has been shown to improve clinical pregnancy rates. (Grade of recommendation C)
- Polypectomy can be considered for endometrial polyps identified prior to commencement of an IVF cycle. (Good practice point)
- If a polyp of >20mm is identified during ovarian stimulation, elective cryopreservation of embryos and polypectomy should be considered followed by frozen embryo transfer. (Grade of recommendation C)
- If a polyp measuring <20mm is identified during ovarian stimulation, there are two management options:
 1. In the absence of risk factors for endometrial pathology, expectant management by proceeding with fresh embryo transfer is reasonable. (Grade of recommendation B)
 2. Elective “freeze all” of embryos and polypectomy can be considered if there are risk factors for endometrial pathology or associated with poor previous reproductive outcome. (Good practice point)

- Management decisions should be based on the size of the polyp, location, number of good-quality embryos, aetiology of infertility and the patient's reproductive history. (Good practice point)
- In women with a history of recurrent implantation failure or recurrent miscarriages, polypectomy is preferred. (Good practice point)
- If the endometrium is irregularly thickened or has concerning features on imaging for hyperplasia or endometrial cancer, hysteroscopy is warranted to exclude endometrial hyperplasia or carcinoma. (Good practice point)
- At the time of endometrial polyp excision, assessment for pathology within the endometrial cavity, endocervical canal and cervix should also be performed. (Good practice point)
- All excised endometrial polyps should undergo histopathological assessment. (Good practice point)
- Hysteroscopy in the outpatient setting is likely to be more cost effective but is associated with higher levels of pain. (Good practice point)
- Mechanical hysteroscopic tissue removal systems are preferred over bipolar electrodes for excision of endometrial polyps. (Good practice point)
- Techniques that avoid the potential for thermal damage to the endometrium should be considered for the excision of endometrial polyps in fertility patients. (Good practice point)
- It is recommended that a frozen embryo transfer takes place within 4 months of a hysteroscopic polypectomy. (Good practice point)

Investigations for the diagnosis of endometrial polyps

Ultrasound

Transvaginal ultrasound (TVS) is a simple and usually well-tolerated method to diagnose uterine pathology, although the diagnostic accuracy of TVS for the detection of endometrial polyps varies across different studies. A meta-analysis of 25 studies showed that the pooled sensitivity and specificity rates for the detection of endometrial polyps with TVS were 55.0% (95% CI, 46.0–64.0%) and 91.0% (95% CI, 86.0–94.0%), respectively (Sanin-Ramirez et al., 2020). Using two-dimensional (2D) TVS, an endometrial polyp may be seen as a hyperechoic lesion with regular contours within the uterine cavity, surrounded by a thin hyperechoic halo. In the secretory phase of the menstrual cycle, polyps can be easily mistaken for other pathology such as fibroids, or even normal endometrial folds (Sheng & Lyons, 2020). Therefore, to maximise diagnostic accuracy, ultrasonographic examination should be performed during the early proliferative phase of a menstrual cycle when the endometrium is thin (Schutyser et al., 2020).

Colour doppler sonography

The addition of colour-flow or power Doppler may improve the accuracy of TVS and enhance diagnostic confidence (Metello & Jimenez, 2017). Colour Doppler can depict the vascularity of the endometrial polyp, which is usually a single feeding vessel. This “pedicle artery sign” (Figure 1) refers to the visualisation of the feeding blood vessel at the endometrial end of the polyp (Afifi et al., 2010; Vitale et al., 2021). This sign has been reported to have a sensitivity of 94% and specificity of 100% in detecting endometrial polyps (Amreen et al., 2018; Kodaman, 2016).

Three-dimensional (3D) ultrasound for polyp detection

The addition of 3D examination to TVS in uterine pathology provides greater sensitivity in the detection of uterine abnormalities. To date, most studies evaluating 3D ultrasound to diagnose endometrial polyps have shown that 3D scans (Figure 2) add confirmatory value when a polyp is suspected on 2D views (Grigore et al., 2021). However, image acquisition, manipulation and interpretation require operator expertise (Vitale et al., 2021).

Saline infusion sonography (SIS)

The addition of intrauterine contrast by saline infusion sonography (SIS) or gel instillation sonography may outline small endometrial polyps missed on grayscale TVS and is likely to improve diagnostic accuracy (Figure 3). The meta-analysis by Sanin-Ramirez et al. (2020) suggested that SIS has a higher degree of diagnostic accuracy for the detection of endometrial polyps when compared to TVS. The pooled sensitivity and specificity for SIS were 92.0% (95% CI, 87.0–95.0%) and 93.0% (95% CI, 91.0–95.0%),

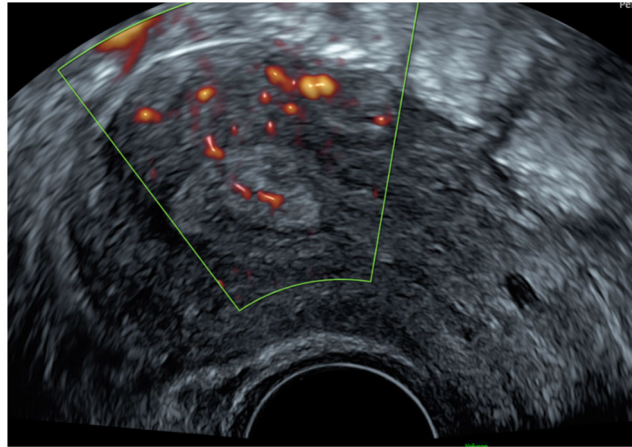


Figure 1. Colour Doppler ultrasound image of a feeder vessel of an endometrial polyp.

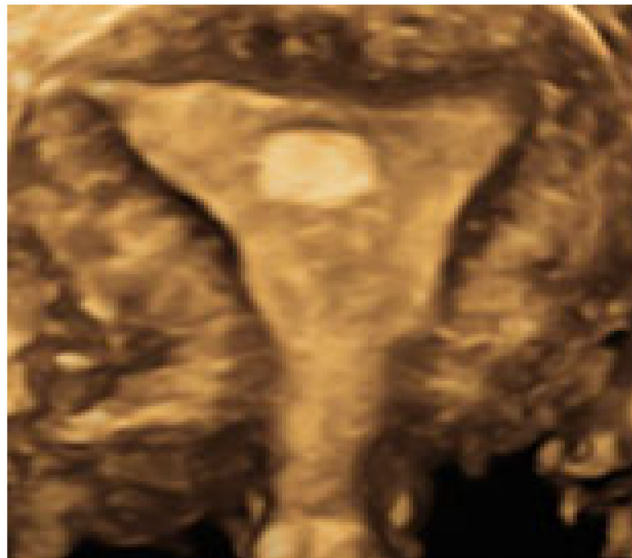


Figure 2. Three-dimensional ultrasound image of an endometrial polyp.

respectively (Sanin-Ramirez et al., 2020). Several studies have reported similar accuracy between SIS and diagnostic hysteroscopy to detect endometrial polyps (Salim et al., 2011). Advantages of SIS include the assessment of both the uterine cavity and other uterine and pelvic structures, and the potential to assess adhesions (Figure 3) and tubal patency in women with infertility. Disadvantages of SIS include an inability to determine whether suspected endometrial anomalies are benign or malignant, a slower learning curve compared with non-contrast TVS, patient discomfort, and the potential risk of ascending infection (Salim et al., 2011). Low-quality evidence suggests that 3D SIS appears to enhance the sonographic visualisation within the uterine cavity. However, while 3D SIS (Figure 4) shows greater sensitivity and specificity than 2D SIS, the difference was not significant and the improvement appears marginal, as 2D SIS is already highly accurate (Nieuwenhuis et al., 2017).

Hysteroscopy

Hysteroscopy remains the gold standard method of confirming intrauterine pathology given its ability to directly visualise the uterine cavity. However, hysteroscopy is invasive and risks uterine perforation, cervical injury, bleeding, infection, damage to bowel, bladder or major blood vessels and difficult access in cases of cervical stenosis. Furthermore, it can delay fertility treatment while patients await



Figure 3. Two-dimensional saline infusion sonography image of an endometrial polyp.

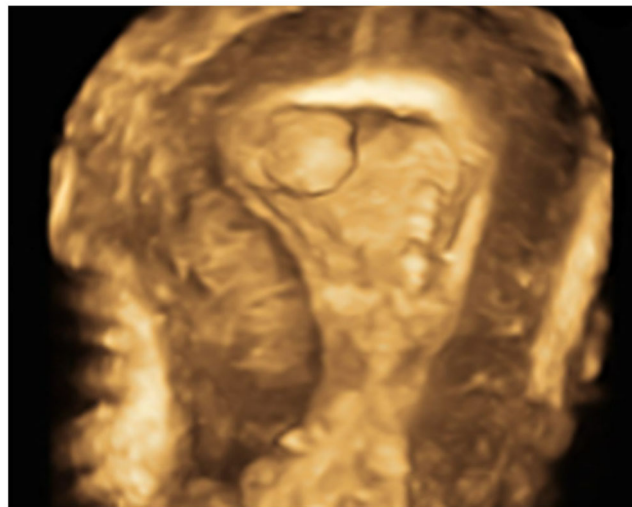


Figure 4. Three-dimensional saline infusion ultrasound image of an endometrial polyp.

hysteroscopy to be undertaken. A systematic review of five trials by Pundir et al. (2014) showed a modest benefit of routine hysteroscopy prior to IVF compared to no intervention, with a significantly higher clinical pregnancy rate (CPR) (relative risk [RR] 1.44, 95% CI 1.08–1.92, $p = 0.01$) and live birth rate (LBR) (RR 1.30, 95% CI 1.00–1.67, $p = 0.05$) in the subsequent IVF cycle in the hysteroscopy group. However, the meta-analysis included non-randomised studies, and the analysis had incomplete livebirth data, which significantly limits confidence in the study's conclusions (Pundir et al., 2014; Smit et al., 2016). More recent studies evaluating the efficacy of diagnostic hysteroscopy in asymptomatic women before fertility treatment have not shown an increase in pregnancy rates (Eserol et al., 2021). The InSIGHT study demonstrated that routine hysteroscopy did not improve LBR in women with infertility. Individuals with a normal TVS should not be offered routine hysteroscopy (Smit et al., 2016). These results were echoed in the TROPHY study which is a randomised controlled trial (RCT) investigating the role of hysteroscopy in women with recurrent IVF failure and found routine hysteroscopy did not improve LBR (El-Toukhy et al., 2016). In a study by Naredi et al. (2021), the data did not identify differences between the diagnostic accuracy of hysteroscopy, 3D ultrasound, and SIS to identify endometrial polyps. However, hysteroscopy offers a therapeutic advantage by allowing for the concurrent diagnosis and removal of a polyp. Therefore, where there is a high suspicion of a polyp on a greyscale ultrasound, it may be preferable to perform a hysteroscopy rather than SIS to avoid delay in removing it (Naredi et al., 2021; Vitale et al., 2021).

Recommendations

- 2D TVS provides reliable information for the detection of endometrial polyps and should be the investigation of choice where available. It should ideally be carried out during the early proliferative phase of the menstrual cycle. (Grade of recommendation B)
- Colour Doppler, 3D imaging and saline infusion sonography increase the diagnostic accuracy of transvaginal ultrasound to diagnose endometrial polyps. (Grade of recommendation C)
- Diagnostic hysteroscopy is the gold standard for identifying polyps, however it should not be considered first-line for the diagnosis of endometrial polyps in the absence of risk factors (e.g., intermenstrual bleeding, obesity). (Grade of recommendation B)

Indications for polyp removal in the context of natural conception and assisted reproduction techniques (ART)

Natural conception

In the event of detection of an endometrial polyp during the initial fertility workup, careful consideration should be given as to whether polyp removal is warranted. In those trying to conceive naturally, studies suggest that women with otherwise unexplained infertility where the only pathology is a polyp, may benefit from it being removed, with a significant increase in the cumulative natural pregnancy and LBR (Afifi et al., 2010; Stamatellos et al., 2008; Varasteh et al., 1999). In women with infertility, a prospective cohort study by Varasteh et al. (1999) reported an increased CPR of 78.3% (18/23) after endometrial polypectomy compared to 42.1% (8/19) in those with a normal uterine cavity (relative risk 3.9, 95% confidence interval 1.6–9.4). Another retrospective study by Stamatellos et al. (2008) showed an increase in spontaneous pregnancy and delivery at term rates of 61.4% (51/83) and 54.2% (45/83) respectively after a hysteroscopic polypectomy. However, follow up time for these patients was up to 18 months post procedure. These cohorts represent most of the data published, suggesting that in a population with infertility a polypectomy may improve reproductive outcomes, and that hysteroscopy is advised if a polyp is found incidentally during investigations for infertility (Stamatellos et al., 2008; Varasteh et al., 1999). There were no studies found during our search that recommended conservative management of endometrial polyps in natural conception. In women with minimal/mild endometriosis, Hu et al. (2023) showed in a retrospective study that the size and number of polyps were independently associated with reproductive outcomes, with multiple or larger polyps >10mm negatively affecting pregnancy rates. The authors suggested that polyp removal should be recommended in women with infertility and endometriosis (Hu et al., 2023).

Recommendation

- In a population with subfertility wishing to continue trying for natural conception, polypectomy can be considered because it may improve pregnancy outcomes, although there is no RCT data to support this. (Grade of recommendation B)

Ovulation induction and intrauterine insemination

A Cochrane review by Bosteels et al. (2018) included one prospective RCT by Pérez-Medina et al. (2005) of women with endometrial polyps undergoing IUI. In this study, 215 patients were randomised to hysteroscopic polypectomy or diagnostic hysteroscopy with a polyp biopsy. Patients who underwent a polypectomy had higher chance of clinical pregnancy, compared to a diagnostic hysteroscopy and biopsy only (63% vs 28%) (OR 4.4, 95% CI 2.5 to 8.0, $p < 0.00001$) (Bosteels et al., 2018). However, this RCT has significant methodological concerns and data quality concerns as noted by the Cochrane review group. This study also showed that in the 3 months after a hysteroscopy, 29.0% of those who had had endometrial polypectomy became pregnant naturally before undergoing IUI compared to 3.0% of those who had just had a diagnostic hysteroscopy and biopsy (Pérez-Medina et al., 2005). Thus, the evidence suggests some benefit in waiting three months after polypectomy and allow natural conception to occur before considering IUI. Where natural conception does not occur, waiting three months may still accrue benefit by allowing endometrial healing (Jee & Jeong, 2021; Schutyser et al., 2020). In a prospective

comparative study of 120 patients by Shohayeb and Shaltout (2011), the cumulative pregnancy rates were significantly higher in women for whom polypectomy was performed compared to those who had no intervention (38.3% vs 18.3%; $p=0.015$) (Shohayeb & Shaltout, 2011). While Schutyser et al. (2020) initially identified an increased clinical pregnancy rate in women with no polyp compared to women found to have a polyp during the follicular phase of an IUI cycle, female age was significantly higher in the polyp group. After adjusting for confounders such as age and BMI (adjusted hazard ratio 0.742, 95% confidence interval 0.477–1.156, $p=0.19$) the difference was no longer significant. The conclusion of this retrospective cohort study was that if a polyp is found during the follicular phase of an IUI cycle, which was not present on a baseline scan, then it does not seem to compromise clinical outcome (Schutyser et al., 2020). A recent retrospective study demonstrated that there was no difference in CPR when comparing the length of time from polypectomy to IUI. They categorised patients into 4 groups from 0 days to 91+ days and concluded that it was reasonable to offer IUI anytime following surgical treatment (Yamasaki et al., 2024).

Recommendation

- In women undergoing ovulation induction/intrauterine insemination, polypectomy can be considered as it has been shown to improve clinical pregnancy rates. (Grade of recommendation C)

In vitro fertilisation (IVF)

There is a paucity of data supporting the resection of an endometrial polyp diagnosed before starting controlled ovarian stimulation (COS). However, polyps found prior to commencement of stimulation for IVF are usually further investigated and treated (Carneiro, 2014). Diagnosing a polyp once COS has been initiated poses a management challenge, with two main treatment options: (1) proceeding with a fresh embryo transfer without undertaking a polypectomy; or (2) performing a polypectomy after oocyte retrieval and elective freezing of all embryos, followed by a frozen embryo transfer (FET) at a later date. Lass et al. (1999) conducted a non-randomised prospective cohort study on 83 patients with endometrial polyps smaller than 20 mm. These patients were divided into two groups: 49 patients underwent standard embryo transfer, and 34 patients had a hysteroscopic polypectomy immediately after oocyte retrieval, with embryos transferred in a subsequent cycle. The study found no difference in clinical pregnancy and live birth rates between the two groups (Lass et al., 1999). A recent study by Schutyser et al. (2025) retrospectively studied women with polyps <15mm identified during COS. They also found no difference in live birth rate between the fresh transfer group vs freeze all strategy and hysteroscopy before frozen embryo transfer group (68/256 vs 33/116). Ghaffari et al. (2016) also investigated polyps diagnosed during COS that were smaller than 20 mm. They compared outcomes between patients who underwent a hysteroscopic polypectomy and proceeded with a fresh transfer without cycle cancellation, and those whose polyps remained untreated. The findings from this cross-sectional study indicated no difference in clinical pregnancy or live birth rates between the groups (Ghaffari et al., 2016). This so-called ‘without cycle cancellation’ policy where a polypectomy is undertaken during ovarian stimulation and then an embryo transfer is undertaken in the same cycle is not common practise in the UK, the main reason being that introducing fluid during hysteroscopy, this can have a detrimental effect on implantation. Isikoglu et al. (2006) found similar clinical pregnancy and implantation rates between patients who had polyps <15mm during COS, those without polyps, and those who had undergone a polypectomy prior to starting treatment. Despite the small sample size of 15 patients in the remaining polyp group, their results suggested that polyps smaller than 15 mm found during COS did not negatively affect pregnancy or implantation outcomes in intracytoplasmic sperm injection (ICSI) cycles (Isikoglu et al., 2006). Similarly, Tiras et al. (2012) compared patients with polyps smaller than 15 mm detected during COS with those without polyps and found no significant difference in clinical pregnancy and live birth rates. Conflicting results were reported by Yang et al. (2017) who studied 56 patients with polyps smaller than 15 mm undergoing hysteroscopic polypectomy during COS followed by delayed frozen embryo transfer. These were compared with 112 patients without polyps undergoing fresh transfer. They reported a higher CPR in the polypectomy group (63.0% versus 41.0%, $p=0.009$), attributing this to the potential therapeutic benefits of endometrial injury during hysteroscopy and lower receptivity

due to higher oestradiol levels in the fresh transfer group. However, no difference in LBR was observed (Yang et al., 2017).

There are no recent studies comparing the miscarriage rate between those having a fresh transfer without polypectomy with those having a frozen transfer after polypectomy. Previous studies have shown a potential trend towards higher miscarriage and biochemical pregnancy rates in the fresh group without a polypectomy (Elias et al., 2015; Isikoglu et al., 2006; Lass et al., 1999). However, these results should be interpreted with caution given the advances in IVF and freezing techniques throughout the years. In addition, the analysis by Lass et al. (1999) showed a non-significant higher miscarriage rate in the fresh cohort with remaining polyps, although only 58.3% had a subsequent histological diagnosis of a polyp (Lass et al., 1999).

For women who have had recurrent implantation failure (RIF), removing a polyp may be justified to improve future outcomes. In a study by Makrakis et al. (2009), the incidence of abnormal hysteroscopic findings in patients with RIF defined as two consecutive transfers of at least one good quality embryo, was 25.0-50.0%, and hysteroscopy appeared to significantly increase the clinical pregnancy rate in their subsequent IVF cycle (Makrakis et al., 2009). However, evidence from the TROPHY study, which investigated the role of routine hysteroscopy in women with recurrent IVF failure, here defined as two to four unsuccessful IVF rounds, found that hysteroscopy did not improve the live birth rate (El-Toukhy et al., 2016). More recently Triantafyllidou et al. (2024) showed in a retrospective cohort study that hysteroscopic resection of a polyp in women who have had one prior failed IVF attempt, increased the CPR (Triantafyllidou et al., 2024).

Given the insufficient and conflicting evidence on the benefits of different management options, management decisions should be individualised to patient-specific factors including polyp size, location, number of good quality embryos, aetiology of infertility and whether there is abnormal uterine bleeding (Kaveh et al., 2020).

Although existing data support the removal of a polyp prior to starting IVF, the time interval between removal and starting ovarian stimulation is unclear. Studies investigating IVF performed >6 months versus <6 months after polypectomy showed no influence on treatment outcome (Eryilmaz et al., 2012; Kodaman, 2016). A larger retrospective cohort study compared <3 months to >3 months and showed that the time elapsed between hysteroscopic polypectomy and the start of a fresh cycle did not affect outcomes. These data suggest that ovarian stimulation could be considered with the next menstrual cycle after hysteroscopic polypectomy (Pereira et al., 2016).

Polyp size

No strong evidence was found for establishing size criteria for polyp removal. It has been reported that small endometrial polyps (<10mm) sometimes regress spontaneously and may be managed conservatively (Afifi et al., 2010). However, Stamatellos et al. (2008) demonstrated in a study of 83 participants that natural pregnancy rates increased in the both the group that had a hysteroscopic polypectomy for small polyps <10mm, as well as those that had larger >10mm polyps removed. There was no statistical difference in the post polypectomy fertility rates leading to their conclusion that polypectomy may improve fertility outcomes irrespective of the size of the polyp. However, there was no comparison with participants who did not have a polypectomy to support this conclusion (Stamatellos et al., 2008). A further study of 230 women with infertility by Yanaihara et al. (2008) also looking at a threshold of 10 mm also showed no difference in the pregnancy rate based on size of polyp (Yanaihara et al., 2008).

Other studies have used a different threshold to the 10 mm than was considered by the above, such as Lass et al. (1999) who showed that polyps of <20mm had no deleterious effect on conception following IVF treatment. Isikoglu et al., (2006) retrospectively investigated the impact of polyps of <15mm and showed no effect on women undergoing IVF with intracytoplasmic sperm injection (ICSI).

Therefore, there is no single, universally agreed size cut off in the literature. In most clinics patients with polyps found during fertility treatment measuring <10mm can be given the option to be managed expectantly. Where polyps found during ovarian stimulation measure >10mm, management decisions should also be individualised according to the patient's reproductive history, polyp size and location, and the number of good-quality embryos. Polypectomy is usually recommended for polyps measuring >20mm.

Polyp location

Yanaihara et al. (2008) showed that polyp location in the uterine cavity influenced fertility outcomes, in a retrospective study looking at polypectomy followed by ovulation induction, intrauterine insemination and luteal support, but not including assisted reproductive technology. Those that were removed near the utero-tubal junction resulted in a greater chance of pregnancy (57.4%), followed by posterior uterine wall polyps (28.5%), lateral wall (18.8%) and then anterior uterine wall polyps (14.8%) (Ghaffari et al., 2016; Yanaihara et al., 2008). In contrast, Lőrincz et al. found posterior uterine wall polyps to affect reproductive outcomes more significantly (Lőrincz et al., 2019). This suggests that disruption of endometrial architecture may differ according to endometrial zones.

Polypoidal endometrium

If the endometrium is irregularly thickened but does not have the appearance of a discreet polyp, this could be because of endometrial polyposis (polypoidal endometrium). This is where multiple polyps are present within the endometrial cavity. It can occur in women of reproductive age but is more common in the perimenopause and in menopausal women. Women with endometrial polyposis may be asymptomatic or present with heavy menstrual or intermenstrual bleeding. The aetiology is unknown, but it may involve chronic inflammation and hormonal dysregulation. There is limited published data on the impact of this type of pathology on reproductive outcomes. However, if an irregularly thickened endometrium is seen on ultrasound scan, a hysteroscopy is warranted to rule out endometrial hyperplasia or carcinoma. At hysteroscopy, larger polyps can be removed. However, excessive disruption to the endometrium may be deleterious to those wishing to conceive and the risk of future adhesions must be weighed up against removing pathology to help reduce abnormal uterine bleeding (Mavrellos & Jurkovic, 2007; Petersdorf et al., 2022).

Recommendations

- Polypectomy can be considered for endometrial polyps identified prior to commencement of an IVF cycle. (Good practice point)
- If a polyp >20mm is identified during ovarian stimulation, elective cryopreservation of embryos and polypectomy should be considered followed by frozen embryo transfer. (Grade of recommendation C)
- If a polyp measuring <20mm is identified during ovarian stimulation, there are two management options:
 1. In the absence of risk factors for endometrial pathology, expectant management by proceeding with fresh embryo transfer is reasonable. (Grade of recommendation B)
 2. Elective “freeze all” of embryos and polypectomy can be considered if there are risk factors for endometrial pathology or associated with poor previous reproductive outcome. (Good practice point)
- Management decisions should be based on the size of the polyp, location, number of good-quality embryos, aetiology of infertility and the patient’s reproductive history. (Good practice point)
- In women with a history of recurrent implantation failure or recurrent miscarriages, polypectomy is preferred. (Good practice point)
- If the endometrium is irregularly thickened or has concerning features on imaging for hyperplasia or endometrial cancer, hysteroscopy is warranted to exclude endometrial hyperplasia or carcinoma. (Good practice point)

Treatment of endometrial polyps

Should an endometrial polyp require excision, this should be performed with hysteroscopy. Dilatation and curettage to excise endometrial polyps is not recommended. This is because of consistent evidence that blind dilatation and curettage of endometrial polyps is associated with higher rates of incomplete excision and intraoperative complications (De Silva et al., 2024; Ludwin et al., 2020; Svirsky et al., 2008).

Medical management of endometrial polyps includes hormonal suppression such as with progestogens or mechanical barrier. A case-controlled study by Chowdary et al. (2019) demonstrated this method can initiate and maintain regression of endometrial polyps. It looked at 19 patients who had a Mirena inserted at hysteroscopy and matched controls from their hysteroscopy database. Both groups had undergone a second hysteroscopy and there was significantly less polyps seen at follow up in the study group than the control group, (37.0% vs 80.0%, 95% CI 1.2–4.1, $p = 0.006$) (Chowdary et al., 2019). Medical management with mechanical or hormonal therapy however cannot be recommended for the management of endometrial polyps in fertility patients due to the inherent contraceptive effect of this form of therapy.

During hysteroscopy it is good practice to undertake a functional and or pathological assessment of the vulva, vagina, cervix and endometrium and this should be documented in the operative findings (De Silva et al., 2024). Excised endometrial polyps should undergo histopathological assessment to exclude cytological atypia or malignancy within the polyp ("AAGL Practice Report: Practice Guidelines for the Diagnosis and Management of Endometrial Polyps," American Association of Gynecologic Laparoscopists, 2012).

A cost analysis and systematic review comparing hysteroscopic polypectomy in the outpatient setting vs under general anaesthesia demonstrated a clear cost benefit for outpatient hysteroscopy (Mouhayar et al., 2017). Patients are also more likely to return to work quicker, lose less income and incur lower travel costs (De Silva et al., 2024). However, outpatient hysteroscopy for some women is associated with higher pain scores, higher rates of patient embarrassment and less tolerability (De Silva et al., 2024; Mahmud et al., 2021, 2023). It is important to recognise that as outpatient hysteroscopy is a sensitive and intimate procedure and can be associated with significant pain, adequate analgesia must be offered to patients undergoing this procedure. There should also be clinical support so that the hysteroscopist can be alerted if the patient is in too much pain or has a vasovagal episode and is unable to voice the concerns themselves (De Silva et al., 2024).

There are different operative techniques for the excision of endometrial polyps under direct vision including the use of mechanical instruments (grasping forceps/scissors), monopolar or bipolar electrode, hysteroscopy with manual vacuum aspiration and hysteroscopic tissue removal systems with a mechanical morcellator. Data from retrospective studies suggest that the clinical efficacy and reproductive outcomes of the hysteroscopic morcellator with a tissue retrieval system compared to alternative techniques such as electro-resection results in a lower operative time, the avoidance of thermal damage to the endometrium, a lower or equivalent complication rate, higher rates of complete excision of polyp, and a higher or equivalent pregnancy rate. However, these studies were limited by their retrospective design, small sample size and potential for selection bias (Baikpour & Hurd, 2019; Yong et al., 2023).

A 2016 systematic review and meta-analysis of 4 RCTs and 3 retrospective observational studies suggested a higher rate of complete excision of polyp and shorter operative time when a hysteroscopic morcellator was used to excise polyps compared to electro-resection (Shazly et al., 2016). A prospective observational study of 114 patients also showed that there was less pain when a hysteroscopic morcellator system was used in the outpatient setting for excision of endometrial polyps (Ceci et al., 2020). Furthermore, a retrospective cohort study by Wang et al. (2025) showed no difference in CPR in 189 women when comparing polypectomy prior to embryo transfer with electromechanical resection devices versus disposable manual resection devices.

Undertaking a frozen embryo transfer within a 4-month time frame following a hysteroscopic polypectomy is likely to confer benefit by reducing the recurrence rate of endometrial polyp. A retrospective study of 102 patients suggested a decreased biochemical and clinical pregnancy rate if embryo transfer is delayed longer than 4 months following hysteroscopic polypectomy (Tu et al., 2020). Furthermore, delaying embryo transfer by two or more menstrual cycles following a hysteroscopic polypectomy has not been shown to confer any clinical benefits (Pereira et al., 2015).

Recommendation

- At the time of endometrial polyp excision, assessment for pathology within the endometrial cavity, endocervical canal and cervix should also be performed. (Good practice point)
- All excised endometrial polyps should undergo histopathological assessment. (Good practice point)
- Hysteroscopy in the outpatient setting is likely to be more cost effective but is associated with higher levels of pain. (Good practice point)

- Mechanical hysteroscopic tissue removal systems are preferred over bipolar electrodes for excision of endometrial polyps. (Good practice point)
- Techniques that avoid the potential for thermal damage to the endometrium should be considered for the excision of endometrial polyps in fertility patients. (Good practice point)
- It is recommended that a frozen embryo transfer takes place within 4 months of a hysteroscopic polypectomy. (Good practice point)

Suggested audit topics

- Accuracy of 2D transvaginal ultrasound, colour Doppler, 3D ultrasound as well as saline infusion sonography in the detection of endometrial polyps.
- Percentage of suspected polyps seen on the aforementioned investigative modalities that were confirmed at hysteroscopy.
- Percentage of polyps identified during fertility treatment, that then required a change in the proposed treatment i.e. recommendation for cancellation of IUI or “freeze all” of embryos during IVF.
- Percentage of polypectomies being performed with hysteroscopy under local anaesthesia vs hysteroscopy under sedation vs hysteroscopy under general anaesthesia.
- Patient satisfaction with elements of the hysteroscopy service.
- Complications (e.g. infection, vasovagal reactions, uterine trauma) of operative outpatient hysteroscopy.
- Recurrence rate of endometrial polyps following hysteroscopic polypectomy.
- Standards of documentation.
- Use of analgesia post-procedure.
- Percentage of women provided with written information and asked for written consent.

Recommendations for research

- In a population of individuals with subfertility wishing to conceive naturally, does polypectomy compared to conservative management improve the chances of pregnancy?
- In a population of individuals with subfertility undergoing IUI and with a known endometrial polyp, does polypectomy compared to conservative management improve the chances of pregnancy or IUI success?
- In subfertile individuals undergoing IVF with a known endometrial polyp, does polypectomy compared with conservative management improve pregnancy outcomes?
- In individuals undergoing hysteroscopic polypectomy, does ambulatory hysteroscopy using pain adjuncts compared with hysteroscopy under sedation or general anaesthesia result in comparable safety and acceptability?

Author contributions

CRedit: **Phoebe Howells**: Data curation, Formal analysis, Investigation, Methodology, Project administration, Writing – original draft; **Kugajeevan Vigneswaran**: Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Writing – original draft; **Ippokratis Sarris**: Conceptualization, Data curation, Investigation, Supervision, Writing – review & editing; **Pedro Melo**: Conceptualization, Investigation, Project administration, Supervision, Visualization, Writing – review & editing; **Harish Bhandari**: Conceptualization, Data curation, Methodology, Project administration, Supervision, Validation, Visualization, Writing – review & editing; **Venkatesh Subramanian**: Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Project administration, Resources, Supervision, Validation, Visualization, Writing – original draft, Writing – review & editing.

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