We report three cases of unsuspected pregnancy during hysterosalpingography (HSG) with different outcomes. In the first two cases, menstrual history was wrongly relied upon and no pregnancy tests had been performed. However, even with a negative pregnancy test carried out prior to the investigation, as in the third case, this was proven not to be foolproof. The outcome of our pregnancies involves one ectopic, one miscarriage and one normal term pregnancy. We advocate not relying solely on menstrual history and to be aware that even in cases where there is a negative pregnancy test before HSG, the patient can still be pregnant. Although the reporting of unsuspected pregnancy during HSG is rare, there is still a need to be alert, especially in high-risk patients with irregular, long menstrual cycles and unprotected intercourse prior to the investigation.

Key words: hysterosalpingogram/pregnancy/tubal patency

Introduction

Hysterosalpingography (HSG) is a ubiquitous and commonly performed diagnostic investigation to assess tubal patency in infertility patients. Most of the patients will not be using contraception and some may have irregular cycles.

To date, only a few reports have been published regarding unsuspected pregnancies during HSG. The prevalence reported by Justesen et al. (1986) was 0.6%, the authors reporting four cases of pregnancies out of 6225 HSGs in their hospital. Previous reports have advocated various ways to prevent unsuspected pregnancy during HSG, including performing HSG during the first 10 days of menstruation and performing a pregnancy test prior to the investigation. Here, we report that despite taking the above precautions, three patients were still found to be pregnant at the time of HSG.

Case 1

The patient in case 1 was a 23-year-old nulliparous woman with one previous abortion. She had HSG performed by a private radiologist for the investigation of secondary infertility. The radiology report showed no abnormalities and the tubes were patent. She had regular menstrual cycles of 28 days. Her last menstrual period was 5 days before the investigation and no pregnancy test was performed. Seven days after the investigation she presented to the accident and emergency department with abdominal pain and vaginal bleeding, and the diagnosis of endometritis was made. She was given one course of antibiotics.

One week later, she presented to the gynecological department with increasing lower abdominal pain. Her pregnancy test became positive. She had no sexual intercourse since the HSG and an ultrasound scan showed an empty uterus with right adnexal mass, which was highly suspicious of an ectopic pregnancy. A laparoscopic right salpingectomy was performed and tubal pregnancy was confirmed on histology. Her post-operative course was uneventful.

Case 2

A 32-year-old nulliparous woman with irregular, long menstrual cycles ranging from 60 to 120 days presented for HSG for the investigation of primary infertility. Her last menstrual period was 5 days before HSG, which showed blocked distal end of the left Fallopian tube.

The patient was found to be pregnant 2 months after the HSG when she presented with some vaginal spotting and an ultrasound scan showed a viable intrauterine pregnancy. As the patient claimed she had had no coitus since the HSG because of on and off vaginal spotting after the procedure, we believe that the conception most likely occurred prior to the investigation. According to fetal parameters, the pregnancy was 2 weeks further along than her calculated estimated date of confinement by menstrual date. This supported the notion that the conception occurred before the HSG. The patient chose to continue with the pregnancy after detailed counseling.

A morphology scan at 20 weeks’ gestation showed no structural fetal abnormalities. After an uncomplicated pregnancy of 39 weeks, the patient delivered a healthy infant.
weighing 3610 g by vacuum extraction. The neonatal examinations were normal.

Case 3

The case 3 patient was a 31-year-old nulliparous woman undergoing HSG for investigation of primary infertility. Her last menstrual period was 3 months before the investigation, she normally had long, irregular menstrual cycles varying from 60 to 90 days, and so a pregnancy test was carried out on the day of HSG, which proved to be negative.

However, 2 days after her investigation the patient presented to a private doctor complaining of vaginal bleeding. A pregnancy test was performed, which was positive. Her HSG films showed normal patent Fallopian tubes but abnormal uterine cavity due to suspected synechiae (Figure 1). She was referred to our department because of vaginal bleeding and lower abdominal pain. An ultrasound scan showed an intrauterine sac-like structure of 4.7 mm without fetal pole, which was suspected to be a pseudosac. There were no adnexal masses or free fluid. In view of the possibility of ectopic pregnancy, serial HCG measurement was performed. The first HCG level was 953 IU/l and the second level, taken 48 h later, was 547 IU/l. The serial HCG showed a decreasing trend compatible with miscarriage, and medical evacuation was performed using a course of oral misoprostol (Cytotec®; Searle, IL, USA). The tissue passed out was confirmed on histology to be products of gestation.

Discussion

Even with pregnancy testing and accurate menstrual history, there may still be a minority of patients who will be pregnant during an HSG. In our first two cases, no pregnancy test was performed and menstrual history was relied upon. However, this is not always reliable due to confusion with decidual bleeding. Even when pregnancy testing was performed on the day of the procedure, as in our third case, the early pregnancy was not detected.

Radiological appearance may alert one to a pregnancy during HSG. Slezak et al. (1968) were the first to describe decidual opacification associated with water contrast medium infiltrating the decidual lining, producing the double-contoured image that they termed double-outlined uterine cavity (DOUC). In the literature, both Justesen et al. (1986) and Issacs (1978) describe DOUC and filling defects in their unsuspected pregnancies during HSG. The filling defect is attributed to the intrauterine amniotic sac.

However, these radiological appearances can not be exclusively diagnostic of pregnancy. DOUC has been recognized during HSG performed in the late secretory phase (Slezak et al., 1968), while filling defects can be suggestive of endometrial polyps or synechiae (Stadtmauer and Grunfeld, 1995).

On the other hand, a normal HSG cannot exclude early intrauterine pregnancy, as illustrated in our case 2, nor can it exclude an ectopic pregnancy (Teisen et al., 1996).

Only a few case reports have so far been published, and the number of successful pregnancies carried to term in the literature is five out of 11 cases including our series (Issacs, 1978; Justesen et al., 1986; Jongen et al., 2001). All cases have reported an uneventful outcome. Because of the small numbers reported, there is as yet no conclusion as to whether there are potential side-effects resolving from the procedure itself, i.e. a radiation effect or side-effects from the contrast medium. The calculated radiation exposure during an HSG by Jongen et al. (2001) was 3.7 mGy. The teratogenic risk, as Jongen et al. (2001) suggest, is too low to justify termination of pregnancy.

In both Isaac’s report and our experience there were ectopic pregnancies following the HSG. This could be due to a predisposing factor of tubal damage in infertility patients or possibly a ‘flushing effect’ of the amniotic sac by the contrast medium (Justesen et al., 1986).

The safety of pregnancy after HSG is not well known, given the rarity of this occurrence; therefore, precautions should be taken prior to the procedure. In clinical practice, the advice of performing HSG during the first 10 days of the menstrual cycle has not proven to be completely reliable, as illustrated in our first two cases. Our suggestion is to advise the patient to have protected coitus for at least 4 weeks before the procedure, and to carry out a compulsory pregnancy test before the procedure. If in doubt, a serum HCG should be considered.

References


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