

UNSUSPECTED PREGNANCY AT HYSTEOSALPINGOGRAPHY : A CASE REPORT AND OUTCOME

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Key Words: Unsuspected pregnancy, hysterosalpingography.

(Accepted 10 March 2008)

INTRODUCTION

Hysterosalpingography (HSG) is a commonly performed investigation for infertility work-up, to assess the uterine cavity and tubal patency. The commonest indication for HSG is infertility, which could be primary or secondary. Historically, HSG was originally used for diagnosis of pregnancy. Hauser reported the first clinical HSG application for diagnosis of early pregnancy¹ Miller and Martinz reported their results of HSG in 15 pregnant women, performed by intrauterine injection of 10-15 milliliters of Lipiodol with three miscarriages, which led to the discouragement of the procedure². The published reports of unsuspected pregnancies during HSG have been very few. Justesen et al³ reported a prevalence rate of 0.06%, which was four cases of pregnancy out of 6,225 HSGs Jongen et al⁴ and Cheung et al⁵ reported one and three such cases respectively. Meamarzadeh et al⁶ reported six cases out of over 63000 HSGs done during the authors 30 years practice, in spite of taking safety measures. The dangers of HSG in unsuspected pregnancy are disruption of pregnancy, displacement of the fertilized ovum into the uterine tube (ectopic pregnancy) or peritoneal cavity and mutative effects of radiation on the developing fetus⁷. Previous reports have advocated various ways to prevent unsuspected pregnancy during HSG, which include; (1) The "10 day" rule, which means performing the procedure within 10 days of the last menstrual date. (2) Performing a pregnancy test prior to the procedure.

However, in this case report, menstrual history of prolonged amenorrhea secondary to uterine adhesion from dilatation and curettage, and denial of sexual exposure in the last 6 weeks prior to the investigation, was wrongly relied on. The patient also presented a previous pelvic scan report done two months earlier which showed no evidence of intra-uterine cyesis. clinical indication of uterine

CASE REPORT

Mrs. A.P was a 34 years old woman, who was referred for HSG by a family physician, with a

synechae and last menstrual period of 1st June 2005, which was about 9 months before the date of the HSG. She was gravida5, Para3⁺¹, 3 alive. She attained menarche at 15years of age and had regular 28 days menstrual cycle with 5 days flow until she had a termination of pregnancy by Dilatation and curettage in August 2002, after one month amenorrhea. After an initial normal menstrual flow for about 3 months, her period ceased, and subsequently her menstrual flow was induced by the use of drugs. The last drug induced menstrual flow was June 2005. She denied any history of sexual exposure in the last 6 weeks, prior to the date of the HSG. Unfortunately, no pregnancy test was done and the previous pelvic scan was done 2 months earlier which showed no evidence of cyesis. The patient was placed in the lithotomy position, the uterus was sounded and the cervix was cannulated with a Leech Wilkinson cannular. Following retrograde injection of 76% urografin, a radio-opaque crescent Sign was noted on the right side of the uterine cavity. Further injection of contrast showed an enlarged uterine cavity with some irregular intrauterine filling defects. The procedure was continued with the assumption that this could be due to intramural or submucous fibroids. A total of about 60mls of 76% urografin was injected without opacification of the fallopian tubes. 5 spots films had been taken before the procedure was terminated, since the HSG was done blind due to non-availability of a fluoroscopy unit

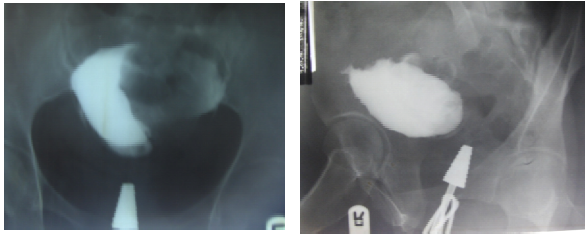
Figure 1: A Pelvic Ultrasound was decided on, to assess the Uterine Fibroids, when a Viable Active Intra-Uterine Fetus of about 10weeks Gestation was Found.



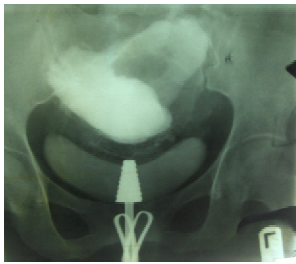
(A) Crescent sign



(B) Persistent Crescent sign



(C) Early Double Outline Uterine Cavity (DOUC). (D) Oblique view.



(E) Persistent DOUC with filling defect.

Subsequently, the procedure was terminated and follow-up scans were recommended until delivery. The follow up scan done at 20 weeks to assess for morphological anomaly showed no abnormality. She had an uneventful antenatal care and delivery. A normal female, term fetus weighing 4.3kg was delivered seven months after the HSG at approximately 41 weeks, based on the ultrasound dating on the day of the HSG.

Figure 2: Pelvic Scan Showing a Single Viable Active Intrauterine Fetus of About 10 Weeks Gestation.



DISCUSSION

In the work-up of female infertility, HSG being an important procedure for the determination of structural abnormality in the uterus and the fallopian tubes, most women with infertility are often anxious to have it done. In the process some even give incorrect information, to ensure that the procedure is not postponed. Inadvertently performed HSG during

Early pregnancy is very rare as in this present case report. Out of over 4500 HSGs done within the last 15 years in the department of Radiology, University of Benin Teaching Hospital, Benin City, Nigeria, this is the only reported case of early pregnancy during HSG, giving a prevalence rate of 0.02% which is similar to the report of 6 cases out of 63000 HSGs in over 30 years of practice by Meamarzadeh and Sharzad⁶ and Justesen et al³, who reported a prevalence rate of 0.06%, reporting 4 cases out of 6225 HSGs in their hospital. The greatest risk to the developing fetus is the effects of radiation exposure during the early embryonic stage with possible teratogenic risks, especially if spontaneous abortion does not occur. As observed in this case report, the exposure occurred at about 10 weeks gestation, which is a period of organogenesis, but no teratogenic effect was observed. This goes to confirm that the observation by Jongen et al., that the calculated exposure of about 3.7mGy during HSG is too low to justify termination of pregnancy because of possible teratogenic risks.⁴ Without the use of fluoroscopy in HSG, it was observed that the radiation exposure is reduced by about 85% in a work done by Shirley.⁸ Using a 2 film technique, without fluoroscopy, Shirley found that a posterior fornix dosimeter recorded a mean of 129mRad, which would increase to 1053mRad when fluoroscopy was used.⁸ In our department, all HSGs are done blind due to non-availability of a functioning fluoroscopy unit and this is more of a blessing in terms of radiation exposure, even if we agree that this is not ideal. In this case report a normal term birth was recorded. Only few cases of successful term pregnancies had been reported in the literature. Ten cases of HSG in pregnancy reported by Wilson et al all led to normal term infants and 26 cases in the Goldberg study were all healthy and free of any congenital defects.^{9,10} In the series by Meamarzadeh et al⁷, four cases out of six resulted in normal term births that were followed up for another 2 years after birth. In one of the patients, HSG was done twice by mistake and one of the 4 cases had healthy twin delivery. Various radiological appearances that may alert one to a pregnancy during HSG have been described. Slezak et al¹¹ 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-outline uterine cavity” (DOUC). Justesen et al³ and Isaacs¹² described DOUC and filling defects in their unsuspected pregnancies during HSG. The filling defect is attributed to the intrauterine amniotic sac. However, these radiological appearances cannot be exclusively diagnostic of pregnancy. DOUC has been recognized during HSG performed in the late secretory phase^{11,12}, while filling defects can be suggestive of endometrial polyps, submucosal fibroids or synechiae, except by history or ultrasound

examination.¹³ Enlarged uterine cavity with intrauterine filling defects are recognized features of uterine fibroids, hence, our reason for scanning this patient was to confirm the presence of uterine fibroids, but a 10 weeks viable fetus was seen. It is better to avoid the mistake of HSG in pregnancy, but as observed in the literature none of the precautionary measures is foolproof and a normal HSG may not rule out an intrauterine pregnancy or an extrauterine pregnancy for that matter. Inclusion of a pelvic ultrasound scan just before HSG is a worthwhile suggestion apart from the other established precautionary measures.

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