

## Term Delivery Following Inadvertent Exposure to Hysterosalpingography in Early Pregnancy: Case Report

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### Summary

Hysterosalpingography is performed in young women with uterine fibroids prior to myomectomy mainly to outline or otherwise the fallopian tubes. This procedure was erroneously performed in a 32 year old sexually active unmarried patient in early pregnancy (4 weeks and 4 days). The pregnancy defied the invasive procedure and continued to develop and grow resulting in the delivery of a live female infant. Other patients may not be that fortunate, particularly infertile patients undergoing investigation for infertility. It is advised, therefore, that all hysterosalpingographs be carried out in the first half of the menstrual cycle particularly in a sexually active woman. This would avoid inadvertently dislodging an existing pregnancy.

**Key Words:** HSG, Pregnancy, Radiation Exposure [Trop J Obstet Gynaecol, 2006, 23:186-188]

### Introduction

Hysterosalpingography is a radiological investigation in which a radio-opaque contrast medium is injected trans-cervically into the uterine cavity. This allows the assessment of the endometrial cavity structure, tubal patency and tubal architecture<sup>1</sup>.

The first injection of a radio-opaque medium into the uterus was in 1910 by Rindfleisch using a thick bismuth suspension<sup>2</sup>. The procedure has since then been refined over the years to the present stage where oil or water based contrast media are used. It is performed usually as an outpatient procedure, several days after the cessation of menstruation. The procedure is best performed between day 7 and day 12 of a 28 day cycle, that is, in the follicular phase of the cycle to avoid exposing an un-diagnosed early pregnancy to radiation<sup>3,4</sup>. The procedure can demonstrate uterine lesions such as endometrial polyps, sub-mucous fibroids, and tubal patency in the presence of fibroids. It is contraindicated in pregnancy.

I report a hysterosalpingography in pregnancy with continuing pregnancy, with the hope that patients would be properly evaluated to rule out pregnancy before the procedure is done. This has not been reported in this part of the country where the procedure is commonly performed before myomectomy and the investigation of infertility.

### Case Report

JD was a 32 year old single student who was first seen at a gynaecological clinic on 20<sup>th</sup> November 2003, complaining of lower abdominal pain and heavy menstrual periods for a period of 1 year. The periods were said to be regular, and she was sexually active. A pelvic ultrasound scanning on 21<sup>st</sup> November 2003 demonstrated a bulky uterus of length 5.3 cm, with multiple intra-mural uterine fibroids, the largest measuring about 2.8 x 3.0 cm. The ovaries were of

normal size. She was given an appointment for further evaluation but did not come back.

In August 2004, about one year after she was first seen, she consulted another gynaecologist outside the teaching hospital with the complaint of heavy menstrual bleeding. She was examined and found to have a bulky uterus secondary to uterine fibroids. As a pre-requisite to myomectomy for symptomatic uterine fibroids, a request for a hysterosalpingogram was made to rule out or confirm tubal patency prior to the surgery.

Her last normal menstrual period was on the 2<sup>nd</sup> of August 2004, and she had the HSG performed on 2<sup>nd</sup> September 2004 at another health care facility. The HSG was as in figures I and II. (*Radiology report:* Bulky uterus with multiple filling defects. The right tube is patent. Assessment: multiple uterine fibroids, multiple polyps or a mural space occupying lesion).

She again presented to the gynaecological clinic in JUTH on 11<sup>th</sup> October 2004 to book for the myomectomy, where she would prefer to have the surgery. Her last normal menstrual period was still that on the 2<sup>nd</sup> of August 2004. An abdomino-pelvic ultrasound scan was again ordered for, to confirm and evaluate the sizes of the fibroids and to compare these with the last scan done over 12 months back (17<sup>th</sup> November 2003). In addition it was noted that she had not seen a menstrual period in September.

The ultrasound scan this time (12<sup>th</sup> October 2004) demonstrated a gestational sac with a viable fetal pole. The crown-rump length measured 33mm, the amniotic sac measured 43mm in diameter and the fetal heart activity was present. A diagnosis of intrauterine

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pregnancy at 10 weeks was made. The calculated expected date of delivery was 12<sup>th</sup> of May 2005. In retrospect, at the time of the investigation (HSG), she was estimated to be 4 weeks and 4 days pregnant. On the discovery that she was pregnant she was counselled and advised to book for antenatal care which she accepted.

A repeat ultrasound scan on 16<sup>th</sup> November 2004 showed a viable normal singleton fetus at the gestational age of 15 weeks 1 day. The bi-parietal diameter was 35.0mm, occipito-frontal diameter 40.4mm, thoracic diameter 29.2mm, abdominal circumference 111mm, and femur length 23.4mm. The placenta was posterior, and the amniotic fluid volume was adequate. The expected delivery date was calculated to be 9<sup>th</sup> May 2005.

**Figure I: Control film of the hysterosalpingogram performed on the patient**



**Figure II: Second film of the hysterosalpingogram showing filling defects**



She was seen at the antenatal clinic on the 3<sup>rd</sup> March 2004 and found to be in satisfactory condition. Her fundal height measured 31 cm, compatible with a gestational age of 30 weeks. The fetus was singleton in longitudinal lie and in cephalic presentation. The amniotic volume felt adequate, and the foetal heart sounds were present and regular. She subsequently delivered a normal live female infant of 2.5 kg at term

### Discussion

Hysterosalpingography is a prerequisite to myomectomy by most gynaecologists particularly in young women with uterine fibroids. It defines the uterine cavity, allowing the visualization of submucous fibroids and establishes tubal patency or otherwise prior to the operation<sup>5</sup>. It is advised that HSG be done before and after myomectomy<sup>6</sup>. This test was ordered for to precede a myomectomy for uterine fibroids. She was a relatively young woman at the age of 32 years, and was not yet married. Her menstrual periods were said to be regular but with a heavy flow. Investigations like HSG, hysteroscopy, endometrial biopsy, and procedures like the insertion of IUDs have the potential to destroy an existing pregnancy. All women in their reproductive age should be considered as pregnant until proven otherwise. This is true in both the married as well as single women. Sexual activity should be sought for, and when in doubt, a pregnancy test should be ordered. The women excluded should be those on a reliable contraceptive method, and are reasonably sure that they are not pregnant; and those that have not had sexual intercourse since their last normal menstrual period.

This patient had the investigation performed after she had in fact missed a menstrual period, and very early in the pregnancy. Her last normal period was on the second of August, and she would have bled again on the 30<sup>th</sup> of the same month in a 28-day cycle. This was missed. She had the investigation on the 2<sup>nd</sup> of September, when she was about 4 weeks and 4 days pregnant. This could have been avoided if an enquiry had been made about her last normal menstrual period and a pregnancy test done if in doubt. An assumption however could have been that because she was a single woman, she was not sexually active. This has proved that it is not always the case.

Filling defect  
believed to be  
occupied by the  
gestation sac

Fortunately, the pregnancy was not dislodged by the invasive procedure. Ultrasound scanning performed during the pregnancy showed no abnormalities. The pregnancy continued with the delivery of a life baby girl at term with no physical or neurological defects. The haemopoietic system in the developing mammal is very sensitive to the damaging effects of ionizing irradiation. Epidemiological studies have established a strong association between obstetric exposure to diagnostic radiation and an increase in the incidence of childhood leukaemia, mental retardation in children and haematological disorder in adulthood<sup>7</sup>. This baby will need to be followed up for life for any of the complications of radiation.

It is worthy of note that the patient had the habit of moving from one health facility to the other to seek

opinions about how her fibroids could best be managed. The HSG was done by a radiology technician in yet another health facility.

Conducting and or performing invasive investigative or therapeutic procedures on women of reproductive age should consider the possibility of pregnancy and as much as possible exclude pregnancy before continuing to do so. If hysterosalpingography is to be performed, it should be done in the follicular phase of the menstrual cycle to avoid the exposure of an undiagnosed early pregnancy to radiation. When in doubt, conduct a pregnancy test, or better still, postpone the investigation to the following month and in the follicular phase of the cycle.

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