

Intravasation of water-soluble contrast agent into the internal iliac vein during hysterosalpingography

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SUMMARY

Intravasation of contrast agent during hysterosalpingography is a rare event. Most complications of hysteroscopy happen when oil-soluble contrast agent is used and the commonly reported cases are cramping lower abdominal pain, vaso-vagal attack, embolic phenomenon or uterine perforation. During the procedure of hysterosalpingography in a young woman with primary subfertility, using water-based, low osmolar contrast agent, intravasation of contrast into the parametrial vessels and internal iliac veins was noted. There was no major consequence except intense pain that was managed with analgesia and hours of observation. Although no major adverse reaction was noted yet safety profile of such type of contrast agent need to be evaluated further in controlled trials.

KEY WORDS: Hysterosalpingography, Contrast agent, Intravasation, Water-soluble.

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INTRODUCTION

Hysterosalpingography is a procedure that is mostly carried out as a part of subfertility investigations, although it has other diagnostic and therapeutic uses too. Complications of hysterosalpingography are mostly theoretical except for transient abdominal cramping or bleeding. Other rare complications include infection, embolic phenomenon, vaso-vagal attack, uterine perforation, granuloma formation, pelvic peritonitis and dye intravasation.¹

There are different types of contrast media used for the procedure. Either they are oil based or water based depending on their specific formulation, activity and side effects. The debate between which media to use is still on going and water based contrast media is preferred by majority because of the better image quality it gives, earlier dissipation that remove the need of delayed films and avoidance of side effects like embolism and granuloma formation that is known with oil-based contrast agents.² There are few reported side effects of these contrast media verifying rarity of adverse effects and most of these are not confirmed in randomized trials. Despite all the debate being carried out, which medium to use remains the choice of physician or institute.

Iobitriol, Xenetix, is iodinated, low osmolar; water-based contrast media that is less toxic and more soluble than previously used high osmolar agents. Iobitriol, being used now in many radiological procedures, was tested in a large study and it was shown to be 99.04% safe for the general population though the group had not studied its use in hysterosalpingography specifically.³ Moreover Iobitriol has been evaluated for pharmacologic⁴ and toxicology⁵ profile in studies which have shown its protection by excellent pharmacological profile

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and favorability due to safe toxic profile like other water-based contrast agents.

We did literature search to review the previously published complications of hysterosalpingography. Coming specifically across the intravasation of contrast medium during hysterosalpingography, few reported cases were found. In one study from Nepal that was done to detect prevalence of tubal blockage found during hysterosalpingography as a part of infertility work-up percentage of dye intravasation was 1.2% and 1.7% in primary and secondary subfertility respectively.⁶

CASE PRESENTATION

A 32 years old young Saudi lady presented at Reproductive Endocrine and Infertility Medicine Department, Women's Specialized Hospital, King Fahad Medical City, Riyadh, Saudi Arabia on March, 2010. She had primary subfertility of seven years duration. She was asymptomatic with no medical or surgical illness. She had irregular cycle and was previously diagnosed to have polycystic ovaries. Clinically she was obese with BMI of 36.6. Her husband was 33 year old healthy man with normal semen analysis.

She was planned for routine baseline subfertility work-up which included hysterosalpingography. She was next seen in radiology department on the day when she was booked for HSG in the follicular phase of her cycle. The procedure was first explained to the patient in detail and her language. Procedure was started using aseptic technique; cervix was held with forceps and catheter was easily introduced and its placement inside the uterine cavity was confirmed by fluoroscopic image.

In our unit, iobitridol (Xenetix) is used as contrast medium. It is water-soluble, nonionic, low-osmolar

iodinated agent. After taking initial image of the pelvis, (Fig.1) the contrast (Xenetix) was injected slowly through the catheter. When 5ml of contrast was injected, the patient complained of sudden and severe lower abdominal pain. After abandoning the procedure temporarily the radiologist informed that the contrast is seen entering the parametrial vessels and internal iliac vein (Fig.2). Procedure was stopped completely. Patient was in pain, but she was oriented and hemodynamically stable. She was immediately shifted to the recovery room, on IV fluids. She was expectantly managed and pain settled down using simple analgesia. There were no symptoms/signs of hypersensitivity or any system involvement. No abnormality detected on general and systemic examination of cardiovascular, respiratory and central nervous system. Her blood count, liver, kidney function tests, blood sugar and electrolytes all returned normal. Patient was kept under observation for almost six hours during which time she was well and stable. She was discharged home in stable condition.

The X-ray films were again reviewed by the radiologists. It is reported that intravasation of contrast was noted in the venous plexus of myometrium and is seen draining into the internal iliac veins. No spillage of dye was noted into the peritoneal cavity as the procedure hysterosalpingography was not completed.

DISCUSSION

There are few published case reports of dye intravasation during hysterosalpingography but generally it is a rare event.² From Israel in 1990, a case of contrast intravasation and cerebral embolism was reported where oil-based media was



Fig-1: Before injecting water-based contrast agent

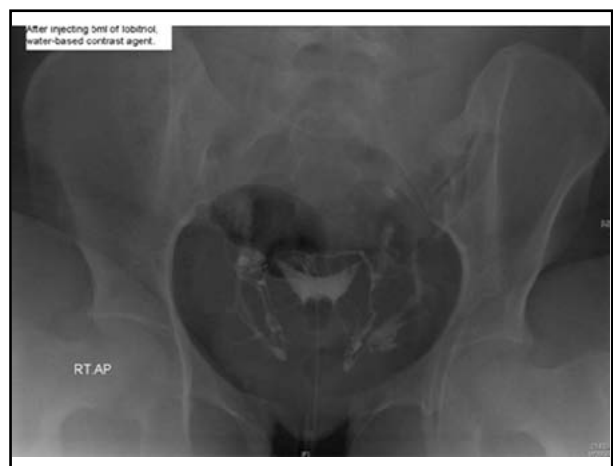


Fig-2: After injecting 5ml of lobitriol, water-based contrast agent

used.⁷ Another case was reported in Japan, in 1991 where a 25 year old lady, with previous history of uterine curettage had pulmonary edema and shock due to contrast extravasation.⁸ And there are similar case reports of contrast intravasation followed by cerebral and pulmonary emboli from Turkey.⁹

Almost all previously reported cases of intravasation had happened when oil-soluble contrast medium was used. There are studies that have compared oil-soluble with water-soluble contrast agents in their achievement to enhance fertility.¹⁰ Some authors have reported better image quality with water-based medium but its relation to intravasation per-se has not been evaluated.

CONCLUSION

Intravasation of water-soluble contrast agents is extremely rare event and being a retrospective complication, it cannot be evaluated properly in prospective studies. However in our case, no adverse outcome was encountered and yet we do not know much about the safety profile of water-soluble contrast agents for diagnostic hysterosalpingography.

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Authors Contribution:

Hussain TZ was directly involved in the procedure of hysteroscopy and noticing its rare occurrence, decided to report it. The report was written by Hussain TZ and reviewed by Agdi M, who also happens to be the treating consultant of the said patient.