

Fluid Overload after Hysteroscopic Polypectomy

Intoxicação Hídrica após Polipectomia Histeroscópica

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ABSTRACT

This purpose of reporting this case is to show that we must be attentive with any type of hysteroscopic surgery, since all are subject to complications which can lead to permanent injury and even death. The case described is that of a 72 year old woman who underwent a diagnostic hysteroscopy for endometrial thickening. During the procedure, the presence of a fundic endometrial polyp occupying the entire cavity was noted. The patient then underwent surgical hysteroscopy for polypectomy. Twenty minutes into the procedure, with six liters of glycine infused, the patient developed fluid overload and the procedure was suspended. The patient received fluid support and electrolyte replacement, and in 48 hours was discharged in good condition. This case illustrates a complication of hysteroscopy. Complications of hysteroscopy are rare, especially for polypectomy with rates of about 0.4%. Complications that can be cited include uterine perforation, infection, hemorrhage, injury to adjacent organs, trauma to the cervix, embolism, and fluid overload. Fluid overload usually occurs with major hysteroscopy surgeries such as myomectomy and endometrial ablation. This type of complication is rare in hysteroscopic polypectomy.

Key words: Fluid overload, hysteroscopy, polypectomy.

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INTRODUCTION

I ncreasingly hysteroscopy has an important role in minimally invasive treatment of patients with intra-uterine disease. The main indications for hysteroscopy are the removal of endocervical and endometrial polyps and fibroids, resection of uterine septum, endometrial ablation, and lysis of intrauterine adhesions (IUA), as well as its immense value in the evaluation of abnormal uterine bleeding and infertility.¹

Hysteroscopic surgery has proven safe and has distinguished itself by the speed with which patients return to their regular activities. The literature has shown that complications of hysteroscopic surgery are infrequent and rarely serious. The main types of complications include uterine perforation, hemorrhage, infection (endometritis), injury to adjacent organs (bladder, intestine), and fluid overload from the distension medium, which has the greatest potential to become more severe and cause irreversible damage.²

The complication associated with distension media, although rare, is serious and can even lead to a patient's death. The main distention media are glycine, sorbitol, mannitol and distilled water. Excessive absorption of fluid and its metabolism can lead to the release of free water that can set off processes leading to pulmonary edema, ascites, cerebral edema, and even death.³ One of the ways found to control the amount of liquid absorbed by the patient is the assessment of the difference between the amount of medium that is being infused during the procedure and the amount that is being absorbed. Some authors describe that this deficit should not exceed 1500 ml to avoid fluid overload.⁴

The initial clinical symptoms of excessive absorption of distension medium are nausea, vomiting, headache, and motor agitation. If not promptly and adequately treated, the patient may develop pulmonary and cerebral edema and even death. Therefore it is of utmost importance that both the surgical team and the anesthetic team are constantly communicating,

because if the patient begins to manifest such symptoms the procedure should be interrupted immediately, and appropriate treatment started, and monitoring of the patient intensified.^{5,6}

This presentation of fluid overload from distention media most commonly occurs in hysteroscopic surgeries such as myomectomy, endometrial ablation and lysis of intrauterine adhesions. With polypectomies, the risk of this type of complication is very small (0.38%).² Nevertheless, we describe a case of a patient who developed a clinical picture of fluid overload during a polypectomy.

CASE REPORT

This 72 year old multiparous (G2) white female, whose menopause began 16 years ago, has been taking tamoxifen for four years for a breast adenocarcinoma. In the course of routine follow-up for the breast cancer, she underwent a pelvic ultrasound that revealed endometrial thickening (endometrial lining 17 mm). The patient was asymptomatic and underwent a diagnostic hysteroscopy.

In our service diagnostic hysteroscopy is performed without anesthesia, using a 4mm Storz optic, with the intrauterine cavity distended with carbon dioxide gas through the Storz insufflator with pressures ranging from 80 to 100 mmHg. This examination, performed in August 2008, revealed a 1 cm endocervical polyp and a 5 cm fundic pedunculated endometrial polyp, without alteration of the vascularization on its surface, which completely occupied the uterine cavity. An endometrial biopsy was not collected during this exam.

Preoperative laboratory tests were order in anticipation of a surgical hysteroscopy for polypectomy. While awaiting scheduling of her surgery, the patient experienced mild vaginal bleeding in February 2009.

In March 2009, the patient underwent surgical hysteroscopy. During the procedure a fundic 5cm pedunculated endometrial polyp occupying the entire uterine cavity was visualized. Hysteroscopy for polypectomy was performed with the patient under spinal anesthesia as is standard in our service.

Twenty minutes into the procedure, the patient developed vomiting, malaise associated with increased blood pressure, tachycardia, and motor agitation. Close

to six liters of intrauterine glycine has been administered and the vacuum container had about 5 liters. The patient, thus, had absorbed one liter of glycine. The procedure was discontinued after the onset of symptoms. About 80% of the polyp had been removed.

The patient received fluid support and electrolyte replacement; her symptoms were treated with anti-emetics and diuretics.

Six hours after the procedure the patient underwent pelvic ultrasound that revealed a large quantity of free fluid in the pelvic cavity, and surrounding the kidney, liver, and spleen. The uterus was anteversoflexed, measured 76 x 36 x 48mm, and had an endometrial lining of 10 mm. Tests showed a sodium of 134 mEq/L, potassium 3.6 mEq/L, urea 36 mg/dL, and a creatinine of 0.62 mg/dL; urine output was 200 ml. Blood pressure was 140/90 mmHg and heart rate 86 bpm.

The patient was kept fasting, at rest, and received replenishment of sodium and furosemide over 24 hours. After this period the patient still had mild nausea, but no signs of edema; her blood pressure and heart rate were normal. Laboratory tests showed sodium of 139 mEq/L, potassium 3.8 mEq/L, urea 17 mg/dL, and a creatinine of 0.63 mg/dL.

She was discharged 48 hours after the procedure in good condition, without any electrolyte disturbance or symptoms.

Two weeks after the procedure, laboratory tests were sodium 141 mEq/L, urea 39 mg/dL, creatinine 0.65 mg/dL, and a potassium of 3.7 mEq/L. Pelvic ultrasound revealed a uterus anteversoflexed measuring 67 x 35 x 54mm with a volume of 56 mm³ and an endometrial lining measuring 17 mm, with normal ovaries.

Anatomic pathology revealed a polyp in the endometrial mucosa with areas of atrophy and atypical complex hyperplasia. With this finding the patient underwent total abdominal hysterectomy. Anatomic pathology reported senile cystic atrophy of the endometrial, a Naboth cyst, endometrial hyperplasia, atrophic ovaries and fallopian tubes, and an absence of neoplasia.

DISCUSSION

Complications of hysteroscopy are relatively rare events. They usually occur in surgical hysteroscopies at rates ranging from 3% to 24%.⁷

Complications of hysteroscopy include uterine perforation, infection, hemorrhage, pulmonary edema, fluid overload, electrolyte imbalance, encephalopathy, cerebral edema, air embolism, visceral lesions, sciatic nerve injury, dissemination of endometrial cancer, cervical trauma, complications of pregnancy, and death.⁷

To avoid many of these complications several authors recommend that one perform 250 diagnostic hysteroscopies before surgical procedures, and that these occur gradually, that is from the simplest to the most complex.⁸ In this case, the surgery was performed by a third-year resident who has little experience in hysteroscopic surgery, even though it was supervised by a physician with surgical skill.

Fluid overload was described by GOLDRATH in 1986 when he noted that women who were undergoing hysteroscopy would present with swelling of the face, increased diuresis, and even pulmonary edema. These signs were similar to those presented by men who underwent laparoscopic resection of the prostate with liquid distention media.⁸

The overload, although rare, can progress to pulmonary edema. It is believed that the absorption of distention media occurs through three mechanisms: tubal passage and peritoneal absorption (extravascular), arterial or venous absorption (intravascular), and massive transit through uterine perforations.⁸

When there is excessive absorption of electrolyte-free liquids, hyponatremia, hypokalemia, and hypoosmolarity are generated. This can lead to mild symptoms such as headache, nausea, vomiting and lethargy and serious symptoms such as cardiac arrhythmia, transient blindness, cerebral edema, cerebral herniation, and death. Fluid overload occurs in 1-4% of surgical hysteroscopy.⁷

In a study in Norway with 800 women from 54 hospitals, fluid overload occurred in 5.2%, with absorption of one to two liters of distention medium, and death from fluid overload occurred in 0.1%. This complication occurs more frequently in endometrial ablations and myomectomies.⁹

PROPST and cols.¹⁰ reported a complication rate of 2.7% in 925 hysteroscopic surgeries. The most frequent complication was fluid overload.

Myomectomies and resection of uterine septum were the hysteroscopic procedures with the highest complication rates, whereas polypectomy and endometrial ablation had the lowest complication rates. In 270 polypectomies – of 925 hysteroscopic surgeries – there was not a single case of fluid overload.

In another study of 13,600 hysteroscopies, the complication rate was 0.28%. The most frequent complication was uterine perforation, with a rate of 0.76%. Fluid overload occurred in 0.2%. The complication rates, according to type of surgery, were 4.48% for endometrial ablation, 0.815% of myomectomies, and 0.38% of the polypectomies.²

A North American hospital that reviewed 227 hysteroscopies found complications in surgeries for endometrial ablation, myomectomy, and lysis of intrauterine adhesions. There was not a single complication among the polypectomies.¹¹

In 697 hysteroscopies performed at an Italian hospital, the complication rate was 13.6%, including 5% due to fluid overload. Myomectomy was the hysteroscopic surgery which had the most complications.¹² In 13 hospitals in Scotland which evaluated 978 women, complications were observed in 12% of cases, and there one case of death from fluid overload.¹³

Excess absorption of low viscosity isoelectrolytic crystalloid, may result in volume overload leading to pulmonary edema, fluid overload, hyponatremia and cerebral edema.³ Treatment should be done with use of diuretics, precise monitoring of urine output, and correction of the electrolyte imbalance. To avoid this it is necessary to control and balance the amount of distention fluid used, even when it is infused at low pressure into the uterus.⁵

This case demonstrates a serious complication in hysteroscopy. Fluid overload is a rare event that is more common during surgeries such as myomectomy or endometrial ablation. Polypectomy is a surgery where complications rarely occur. Fluid overload is a rare event, especially in polypectomy. Still, we should be alert with any type of hysteroscopic surgery to prevent this serious complication.

RESUMO

Este caso tem como objetivo mostrar que devemos ficar atentos a qualquer tipo de cirurgia histeroscópica, pois todas estão sujeitas a complicações, sendo que estas podem cursar danos permanentes às pacientes e até casos de morte. O caso descrito é de uma mulher de 72 anos que foi submetida a uma histeroscopia diagnóstica por espessamento endometrial. Durante o procedimento foi observado a presença de um pólipó endometrial fúndico ocupando toda cavidade. A paciente foi então submetida à histeroscopia cirúrgica para polipectomia. Após vinte minutos do início da cirurgia, com infusão de seis litros de glicina, a paciente apresentou intoxicação hídrica e o procedimento foi suspenso. A paciente recebeu suporte hídrico e reposição hidroeletrólítica e em 48 horas recebeu alta em bom estado geral. Esse caso ilustra um relato de uma complicação da histeroscopia. As complicações da histeroscopia são raras, principalmente nas polipectomias com taxas em torno de 0,4%. Dentre as complicações podemos citar perfuração uterina, infecção, hemorragia, lesões de órgãos adjacentes, trauma cervical, embolia gasosa, intoxicação hídrica. A intoxicação hídrica geralmente decorre de cirurgias histeroscópicas maiores como miomectomias e ablação de endométrio. Na polipectomia histeroscópica é raro apresentar este tipo de complicação.

Palavras-chaves: Intoxicação hídrica, histeroscopia, polipectomia.

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