

A Rare Case of Mesenteric Vascular Injury due to Veress

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Abstract

We report a case of a 46 year old woman who was posted for laparoscopic cystectomy, where injury to the mesenteric vessel caused by veress needle, made us abandon the laparoscopy procedure and convert it to exploratory laparotomy. Even though veress needle is accepted as a safe method for insertion, more studies are required to evaluate veress needle technique for creating pneumoperitoneum in terms of safety profile.

Keywords: Cystectomy; Veress needle; Laparotomy; Pneumoperitoneum

Introduction

Laparoscopy is currently widely used in the practice of medicine, for both diagnostic and therapeutic purposes.

The minimally invasive approach has become the method of choice for treating most benign abdominal diseases that require surgery. However, it is obvious that laparoscopic procedures are not risk-free.

Creation of the pneumoperitoneum is the first and most critical step of a laparoscopic procedure because of the significant risk of vascular and bowel injury

Although there is no consensus regarding the best method of gaining access to the peritoneal cavity to create a pneumoperitoneum the Veress needle insertion is the most frequently used technique.

The Veress needle is inserted blindly into the abdomen, which increases the risk of iatrogenic

injury. Albeit relatively rare, these injuries still occur despite the increasing experience of surgeons and the use of safety methods.

Injury to the great vessels (aorta, vena cava, and iliac vessels), commonly referred to as major vascular injury, is the most serious complication that might arise from a laparoscopic procedure. "Without a doubt, the most dramatic event a surgical team can experience is major vascular injury. Even if the reported prevalence is very low (0.05%), the mortality rate arising from these lesions reportedly ranges 8% to 17%". Hemorrhage can lead to death by hypovolemic shock, and bowel injuries can lead to peritonitis and death from septicemia. It is difficult to determine the exact prevalence of iatrogenic injury during laparoscopy because certain complications are not usually reported, for obvious reasons. Several studies do not distinguish between injuries caused by the insertion of the Veress needle and those caused by the first trocar, which makes it difficult to assess the injuries that were caused exclusively by the veress needle. It is essential to know the possible complications arising from, risk factors for, and prevalence of bowel and major vascular injuries in order to prevent, establish an early

diagnosis of, and treat these injuries properly, thus reducing morbidity and mortality rates.

Case Report

46 year old female, para 2, living 2, tubectomised came with chief complaints of pain in abdomen, on and off moderate intensity since 3 months, no other associated complaints of fever, burning micturation, per vaginal discharge, bowel /bladder alteration. Patient had no menstrual complaints and normal menstrual and obstetric history.

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Nothing significant found in patient's past, personal and family history.

When the patient was examined her general condition was fair, afebrile, vitals stable. Systemic examination did not reveal anything significant.

Internal examination reveals: Per speculum cystocele present.

Minimal enterocele present,

First degree utero vaginal prolapsed on traction.

Per vaginal; uterine size bulky, mobile,

Bilateral fornices free and non-tender,

Patient was subjected to ultrasound examination of abdomen and pelvis.

Management

All routine blood and urine investigations were performed.

Hb:13gm%,

Blood group: B positive,

HIV & HBSAG: negative,

USG (abdomen and pelvis); left ovary shows evidence of a well defined heterogenous lesion measuring (2.7*2.3cms) the lesion is predominantly hyperechoic with a calcific foci within it.

Findings: Dermoid cyst in left ovary (2.7*2.3cms).

Adequate pre-operative preparation was done.

Patient was posted for laparoscopic left ovarian cystectomy under general anaesthesia.

Painting and draping was done.

Bladder was emptied.

A small incision was made in the umbilical region.

We lifted the lower abdomen with the help of left hand and inserted the veress needle.

We performed aspiration test with the help of a 10cc syringe to confirm intraperitoneal entry.

On aspiration with 10cc syringe 2ml blood was aspirated.

We immediately removed the veress and inserted the primary trocar through the umbilicus.

On introduction of 10 mm scope through the primary trocar; there was around 400cc of haemoperitoneum and a spurting vessel just above the iliocecal junction.

In view of haemoperitoneum and the spurting vessel; the decision of conversion to laprotomy was made and immediately one pint (pcv) was ordered and started.

Immediate laprotomy was commenced with a Pfannenstiel incision was taken.

Skin, subcutaneous tissue and abdomen opened in layers.

Immediately spurting vessel was identified which was a mesenteric vessel.

Bleeding was controlled immediately by compression and spurting vessel was ligated. Bowel was observed for any color change for 20 minutes. There was no color change seen in the bowel after 20 minutes.

Left salpingo oophorectomy was done and specimen sent for HPE.

Mop, gauze and instrument count checked and corrected.

Adequate haemostasis achieved.

Abdomen was closed in layers.

Grossly and microscopically findings correlate with dermoid cyst.

Discussion

Laparoscopic surgeries have undergone major technical changes and have been improved over the past few years. The most important step in laparoscopic surgery is to create pneumoperitoneum. Though different methods are described for primary access, there is no method free of complications.

A veress needle is a spring loaded needle used to create pneumoperitoneum for laparoscopic surgery. Of the three general approaches to laparoscopic access, the Veress needle technique is the oldest and most traditional. The tool was first developed in 1932 by Janos Veress, a Hungarian internist working with tuberculosis patients, to give patients pneumothoraces [1].

Modern needles are 12 to 15 cm long, with an external diameter of 2 mm. The outer cannula consists of a beveled needle point for cutting through tissues of the abdominal wall. A spring-loaded, inner stylet is positioned within the outer cannula. This inner stylet has a dull tip to protect any viscera from injury by the sharp, outer cannula [2]. Direct pressure on the tip when penetrating through tissue, pushes the dull stylet into the shaft of the outer cannula. When the tip of the needle enters a space such as the peritoneal cavity, the dull, inner stylet springs forward. Carbon dioxide is then passed through the Veress needle to inflate the space, creating a pneumoperitoneum. In 1947, Raoul Palmer of France popularized the use of the Veress needle using CO₂ to induce pneumoperitoneum for laparoscopy, and he

subsequently published on its safety in the first 250 patients.10 Palmer emphasized that the creation of pneumoperitoneum remains a vital first step, and it is one still associated with recognized complications [3]. Under usual circumstances, the Veress needle is inserted in the umbilical area, in the midsagittal plane, with or without stabilizing or lifting the anterior abdominal wall. In patients known or suspected to have periumbilical adhesions, or after failure to establish pneumoperitoneum after three attempts, alternative sites for Veress needle insertion maybe sought.

Veress needle safety tests or checks

Several studies have described tests and techniques for determining the correct placement of the Veress needle. These include the double click sound of the Veress needle, the aspiration test, the hanging drop of saline test, the "hiss" sound test, and the syringe test. Although all these tests and techniques may be helpful in accessing the peritoneal cavity, the fact the visceral and vascular injuries occur show that they are not foolproof. In fact, a recent prospective study reported that the double click, aspiration, and hanging drop tests provided very little useful information on the placement of the Veress needle. In view of recent evidence, failure to perform these tests should no longer be considered as substandard care or negligence.

In our case, we performed aspiration test which we aspirated blood which gave us a clue to a vascular injury. The incidence of vascular injury with open

laparoscopy is 0.075% which is also considerable; so still there does not remain any consensus regarding entry techniques of primary trocar [4].

Conclusion

Based on the above mentioned discussion even though veress needle for primary access is considered a safe technique, there is still more scope for studies in order to avoid more complications.

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