Research Paper

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Direct Peritoneal Access - A Newer and Safer Method for Inserting Trochar in Peritoneal Cavity

Medical Science

KEYWORDS : Open access; pneumoperitoneum; laparoscopy; open technique; closed technique; complication

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ABSTRACT

BACKGROUND: An open access technique might reduce severe vascular and visceral injuries. Most commonly used method of peritoneal entry is blind insertion of veress needle through infra umbilical stab incision An open peritoneal access through the umbilical cicatrix tube should be developed as a routine method with the goal of the ease, safe and rapid and should be used in all patients.

INTRODUCTION:-

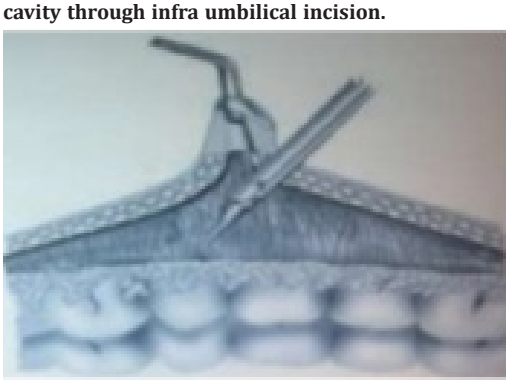
Peritoneal access and creation of pneumo-peritoneum are key initial steps of laparoscopic surgery. Most commonly used method of peritoneal entry is blind insertion of veress needle through infra umbilical stab incision and then insufflating pneumoperitoneum[1,2]. Although it is safe method but outcomes of the studies have been found slightly increased complication because of its 'blind' nature. Another technique begins with small infra umbilical incision followed by gradual dissection of all layers of abdomen and then insertion of Hasson's cannula or port under direct vision[3]. Here we describe newer technique of port placement.

TECHNIQUE:-

First umbilicus is cleaned with one or two drops of hydrogen peroxide (H_{202}). Then umbilical cicatrix is grasped with Beckhau's towel clip and upward and backward traction is applied. This maneuver averts the umbilicus as well as lifts the abdominal wall. One centimeter transverse infra umbilical incision was put with 15 number knife. Using a sharp mosquito forceps subcutaneous tissue is dissected. Now a pearly white structure is seen running from rectus sheath to umbilical cicatrix. Now a vertical incision is made over that structure with 15 number knife and peritoneal cavity is entered. The entry wound is enlarged with a small or medium sized artery forceps. 10 mm port with blunt trochar is inserted under vision.

Figure – 1 showing blunt dissection with mosquito forceps through umbilical cicatrix

Figure – 2 showing Insertion of trochar into peritoneal cavity through infra umbilical incision.



SURGICAL ANATOMY:-

The everted umbilical cicatrix exposes the ligament like structure running from linea Alba to the dermis of umbilical cicatrix. This structure in literature is described as umbilical pillar/ tube / umbilical stalk.[4,16] This fibrous tissue is the remnant of umbilical veins, arteries and urachus. The junction of the umbilical pillar/ stalk with the linea alba is the thinnest part of the abdomen and at this point peritoneum is fused with linea alba as a single layer. So, a simple stab incision over thin fibrous structure provides direct access to peritoneum.

Figure – 3 showing everted umbilicus and dissected umbilical cicatrix is made prominent (on left side) and putting a stab incision over it to make direct access.

DISCUSSION:-

The appeal of entering the peritoneal cavity through a stab at the depth of umbilical cicatrix lies in its simplicity and relative safety and can be easily mastered[1,5,6,9]. Similar technique has been described before and begins with infra umbilical skin incision and grasping the umbilical stalk at the depth of wound with an Alley's forceps[7,12,13]. This could be difficult in

obese patients and requires retraction of skin edges with Langenback's retractor to reach down the umbilical stalk[2,8]. Our technique, where the umbilical cicatrix is everted at the very outset, lifts the umbilical stalk up to the wound making easy dissection of the stalk.

Port placement and creation of pneumoperitoneum is the essential key step in laparoscopic surgery[3,10,12]. Most commonly it is performed by introducing veress needle.[13,14] It is a safer technique but it is essentially a blind procedure. To obviate the inherent drawback of blind technique, Hasson created a technique of port placement made direct vision. [8] This technique begins with a small infra umbilical incision followed by gradual incision of all the layers of the anterior abdominal wall.

Comparison between closed and open techniques is inevitable, desirable, and essentially revolve around ease of execution and attendant complications[5]. Extensive meta analysis has shown that the open technique, on an average is associated with lower incidence of complications and is cheaper and faster than veress needle technique.[11] As opposed to the veress needle, insertion of the trochar and subsequent insufflations is associated with less insufflations related complications and gas embolism.[15] However randomized control trials comparing the two techniques did not show such unequivocal results[6].

The new generation visual entry cannula system may represent an advantage over traditional trochar as it allows clear optical entry but this does not necessarily avoid visceral and vascular injury.

The use of a particular technique mainly depends upon a clinician and patient subgroup, for example presence of previous abdominal scars, obesity etc.

CONCLUSSION:-

The concept of direct peritoneal access through a stab at the depth of umbilical cicatrix lies in its simplicity, relative safety associated with less complications easy closure at the end of the procedure and it can be easily mastered. But it is quite tedious in obese, still the comparison between closed and open technique is merritable, desirable and essentially revolves around ease of execution and attendant complications. So, the surgeon who routinely performs open technique and who believes that open technique is a safer technique, should obtain peritoneal access through umbilical cicatrix. The simplicity, rapidity and inherent safety of this technique went wider applications.

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