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BLEEDING FROM AN UMBILICAL PORT CAN BE PREVENTED. CASE REPORT

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A b s t r a c t

In the post-laparoscopy period, intra-abdominal bleeding from the wound left after an umbilical port can call for an emergency operative revision. Our study of vascular supply of the abdominal wall has made it possible for us to analyse the causes of intra-abdominal bleeding from umbilical ports and develop a technique which reduces the possible risk of these complications. If the port in the umbilical region of the abdominal fascia has to enlarged, we recommend that the incision should be made in the midline and in the inferior direction. The sheath of the rectus abdominis muscle should not be incised laterally because of possible bleeding. The port in the fascia should be closed carefully with haemostatic stitches, and the patient should be monitored for at least 24 hours after surgery.

K e y w o r d s

Laparoscopy, Complications, Bleeding

INTRODUCTION

We have performed a video-laparoscopic surgery at the 1st Department of Surgery of Masaryk University in Brno since November 1991. In spite of our long experience our department is not in a position to avoid all complications. During the recent period, we have met cases of major bleeding from the umbilical port. To avoid these, we have studied vascularisation in the periumbilical region, and we wish to highlight the possible origin of such complications and suggest how these might be prevented.

CASE REPORT AND METHODS

We performed laparoscopic cholecystectomy on a 29-year-old woman diagnosed as having cholelithiasis. Preoperative laboratory and internal examinations had not produced any noteworthy findings. Ultrasonographic examinations, made because of repeated biliary complaints, confirmed the diagnosis of cholelithiasis. Laparoscopic surgery was carried out in the classical way – access into the abdominal cavity was ensured from four ports. The operation proceeded to completion without any disturbing incidents and without any symptoms of intra-abdominal bleeding. After

the gallbladder had been extracted, the operation was completed by inserting a drain into the subhepatic region. A defect in the fascia, left after the withdrawal of an infraumbilically introduced trocar, was sealed with one stitch. In the early postoperation period, the patient was without signs of increased secretion from the drain, without tachycardia or fall in blood pressure. Nineteen hours after the surgery, secretion from the abdominal drain showed an increase. The patient was transferred to the intensive care unit with signs of anaemia in the blood count. Because of the onset of tachycardia, pain in the abdominal cavity with peritoneal irritation and continued haemorrhagic secretion from the abdominal drain, an urgent operative revision was started. Large quantities of blood and blood coagulum were found in the abdominal cavity. The region of the hepatic bed after cholecystectomy, however, was dry and without signs of bleeding. The source of the haemorrhage was ascertained in the wound from the infraumbilically introduced umbilical trocar where a branch of the deep inferior epigastric artery was bleeding. The bleeding was stemmed by ligating the artery. In the further course of treatment, the patient was without any other complaints.

We met with an analogous situation once more in other patients. In these cases, however, the bleeding from the deep inferior epigastric artery was recognised in time and addressed by suturing the peritoneum, fascia and subcutis in one layer with stitches. The patients healed without complications.

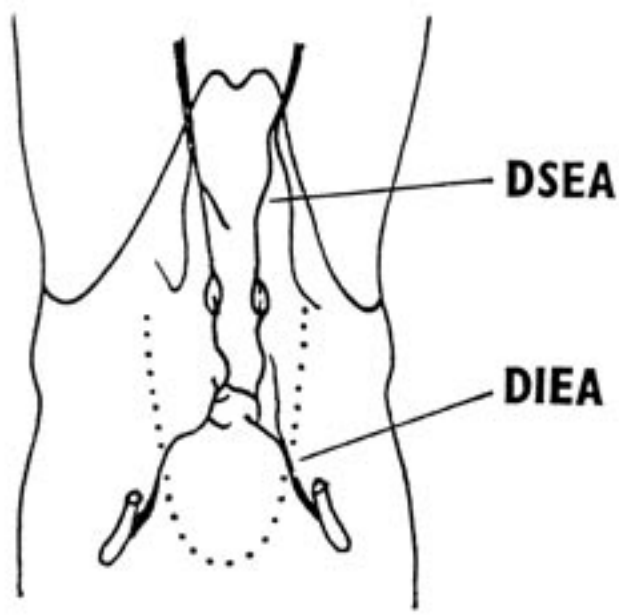

Fig. 1
Vascular supply of umbilical area

DISCUSSION

Bleeding after laparoscopic surgery is a dangerous complication. Therefore, preventing such complications is a fundamental question for the laparoscopic surgeon (*1, 4, 5, 6*). We tried to answer this question by looking for information on the vascular system in the umbilical region. This can be found in anatomy and in the papers of plastic surgeons who use the rectus abdominis muscle for free transfers of muscular flaps. The vascular supply in the umbilical region (*Fig. 1*) is secured by the deep inferior epigastric artery (DIEA), which passes on the back surface of the rectus abdominis muscle and anastomoses with branches of the deep superior epigastric artery (DSEA) in the proximity of the umbilicus. The DIEA is usually larger in diameter than the DSEA. It is interesting to note that the arrangements of the right and left sides of the DSEA and DSIE are often asymmetrical (*3, 7*). The largest number of perforating vessels is located in the periumbilical region of the abdominal wall. These perforators supply the skin with blood in the region of the middle and lower abdomen and are branches of DIEA. There is a paucity of perforators from 1 cm above the umbilicus to the costal margin and also from approximately 9 cm below the umbilicus to the pubis. The major periumbilical perforator vessels are probably direct extensions of the inferior deep epigastric system (*2, 3, 8*). The above-mentioned information caused us to take several precautions. Upon the planned trocar insertion in the umbilical region we perform a semicircular incision of the skin in its inferior fold. If we need to have the port in the fascia enlarged (e.g. for extraction of a gall bladder with gallstones), we try to do it in the inferior direction. Whenever possible, we avoid any enlarging of the port in the fascia laterally because this would increase the probability of damage to the perforators. Also, it might cause bleeding from the partially sectioned rectus abdominis muscle after incising its sheath. If, in spite of all of this, we encounter bleeding in the umbilical region, we perform a careful haemostatic suture of the peritoneum, fascia transversalis, and lamina anterior of the rectus abdominis sheath by single stitches. We consider a 24-hour follow-up period as the minimum for patients who have undergone laparoscopy or laparoscopic surgery.

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KRVÁCENÍ Z UMBILIKÁLNÍHO PORTU MŮŽEME ZABRÁNIT

S o u h r n

V „postlaparoskopické“ éře si může nitrobřišní krvácení z rány v místě zavedeného pupečního portu vynutit neodkladnou operační revizi. Naše studie cévního zásobení břišní stěny nám umožnila analyzovat příčiny nitrobřišního krvácení z pupečního portu a vyvinout metodu, která snižuje možné riziko takové komplikace. Pokud je nutné zvětšit otvor v břišní fascii v pupeční krajině, doporučujeme provádět incizi ve střední čáře v podélném směru. Pochva přímého břišního svalu by neměla být příčně protínána z důvodu možného krvácení. Otvor ve fascii musí být pečlivě uzavřen hemostatickými stehy a nemocný by měl být sledován nejméně 24hodin po operaci.

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