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CONCOMITANT VENTER PENDULUM, DYSTROPHY AND HERNIA OF THE ABDOMINAL WALL SURGERY – OUR EXPERIENCE

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Abstract

Weakness and incisional hernias of the anterior abdominal wall are a consequence of severe weight loss and complications after abdominal surgery. The presence of excess skin of the anterior abdominal wall necessitates the need for concomitant surgery of the excess skin and the weakness of the muscles of the anterior abdominal wall.

The aim of this paper was to present our experience with concomitant surgery of the weakness of the anterior abdominal wall and excess skin when these two conditions were present at the same time.

This retrospective consecutive study included 9 patients, in whom dermolipectomy was performed and strengthening of the anterior abdominal wall by placing individual sutures supra- and infraumbilically, in two layers. Due to the presence of incisional hernia, a polypropylene mesh was placed in three patients. In all patients, two drains were placed pubically. Postoperatively, patients wore a compression bandage.

A total number of 9 patients, the ratio of women to men 8 : 1, were included in the study. Polypropylene mesh was placed in three patients due to the presence of an infraumbilical incisional hernia. The average number of days for drainage was 7 in 45% of patients. Early postoperative complication with seroma occurred in 23%, and late postoperative complication also with seroma formation occurred in 11% of cases.

Concomitant surgery to strengthen the anterior abdominal wall and remove excess skin is a safe and effective method, which saves time and money.

Keywords: concomitant, dermolipectomy, hernioplasty

Introduction

Hernia is the weakness or defects of the abdominal wall of the muscles that cause fat tissue or bowel to protrude outside. The most common causes of this muscle weakness are: aging, obebsity, coronary heart disease, smoking, diabetes mellitus, hard work or pregnancy, injury or scarring from previous abdominal surgery. Most of the hernias are not life-threatening and do not require rapid treatment [1]. Incisions on the stomach wall are frequent complication after laparotomy (9-20%) and often need incisinal hernia repair [2].

The increased body weight is a seriouspublic health problem. Overthe last few decades, the percentage of people with an increased body weight has increased and it is estimated that 35% of the population in the United States is considered obese, and this rise has occurred not only in the US but in other countries, too. [3].

At the same time, the number of those who undergo numerous diets and weight loss techniques is growing.At a loss of 50 to 70% of the bodyweight, skin excess on the body and extremities appears and the need for surgery, such as dermolipectomy, tight and arm tightening.

Acquired weakness or dystrophy of the anterior abdominal muscles in most cases occurs due to obesity and in women with many childbirths. However, it is not uncommon for such dystrophies to be seen in patients without evidence of childbirth, but mostly in those who have lost much of their body weight as a result of diet [4,5].

The most common complication of dermolipectomy is seroma formation, which appears during performing this surgery together with other interventions. Seroma represents an accumulated liquid in the

empty parts, which differs from edema, which is accumulation in the interstitial space. Seroma is accumulated lymphatic tissue, usually clear or inflammatory exudate during venulocapillary proliferation; or residual hematoma of blood clot. It can be prevented with a careful surgical technique and application of compressive garment. Smaller seromas are removed by puncture or by drainage. In some cases, not resolved in this way, it is necessary to excide thecavity.
In the literature concomitant venter pendulum, dystrophia and hernia of the abdominal wall surgery has been discussed as very useful since it is time and money saving procedure[6].

Aim

The aim of this paper was to present our experience with concomitant surgery of the abdominal wall when excess skin and weakness of the anterior abdominal wallwas present.

Material and method

This wasa retrospective consecutive study, comprising 9 patients (8 women and 1 man) admitted at the University Clinic for Surgical Diseases "St. Naum Ohridski" in Skopje, with ventral pendulum and weakness of the anterior abdominal wall. Preoperatively laboratory and clinical examinations were done. Anticoagulant therapy (acenocoumarol, acetylsalicylic acid) were stopped one week prior to surgery, and women were not operated on one week before and after beginning of menstruation cycle period. Prior to surgery,marking of the operating field in a vertical position was done.

The surgery was performed under general anesthesia. Horizontal incision, approximately from one to another spina illiaca anterior superior left to right, in the lower part of the abdomen was made, then dissection in the subcutaneous area, above the fascia and separation and rising of the dermal flap, upper until the distal part of the ribs. Large perforated blood vessels were sutured with the resorptive thread – vicryl (2,0). In six patients, strengthening of the anterior abdominal wall was done with individual sutures of the aponeurosis supra and infraumbilical in two layers, and in three patients, a polypropylene mesh was placed (polypropylene monofilament macroporous, weight 40-46g/m², pore size 2x2,4 mm) 15 x 10 cm because of a large infraumbilical hernia. The dermal flap was cut and the excess tissue was removed. New umbilicus was made and was repositioned. The operative wound was closed with a the resorptive thread – vicryl (2,0), in two layers and one layer with polypropylene thread (0,0) and two vacuum drains (16 FG) were placed in the pubic region.

Postoperatively, the abdominal elastic garment was placed. The next day after the surgery, every patient was verticalized and started walking, maintained flexion in the thighs and avoided torso extension in order to speed up patient's recovery and to prevent formation of venous thrombosis in the lower extremities. Postoperatively, the general signs for formation of seromaand infection of the wound were monitored - elevated body temperature, total number of leukocytes and local signs - pain, formation of edemaat the wound site, time of drainage of the wound.

Drains were removed approximately one week after the surgery and patientswere discharged from the hospital. Stitches were removed after two weeks.

Results

The study included nine patients, eight women (89%) and one male (11%), aged 38 to 42 years (mean 40 years). The amount of extracted tissue was from 300 to 700 gr (mean 466 gr). Wound drainage lasted for 7 days in 4 patients (45%),and up to 10 days in 3 patients (33%) The drain was removed when the amount of accumulated fluid was less than 30 ml in 24 hours.

In 2 patients (23%) with seroma, drainage of the wound was over 14 days (Figure1). Discharge from the hospital was monitored by removal of the active drain or from 7 to 10 days (88%). In these two patients (23%), due to the appearance of seroma hospitalization lasted for 17 days.

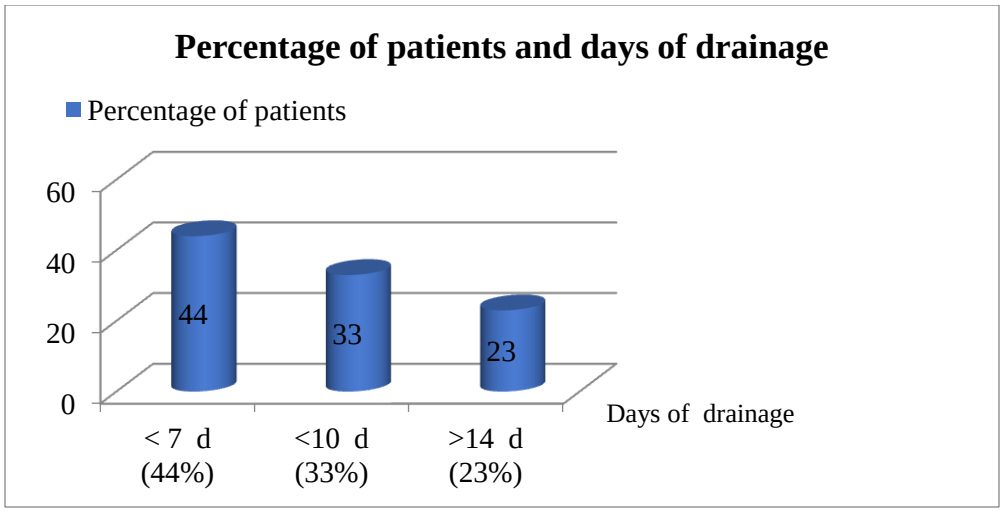

Figure 1. Days of drainage and percentage of patients

In two patients, postoperatively, after 10 days (23%) there was aswelling in the area of the surgical wound, with a feeling of firmness and severe pain. Seroma formation was verifiedclinically and ultrasonographically (in both cases with the dimension 12 by 5 cm) (Figure 2). We approachedto reinstallation of the drain. The average amount of liquid obtained was about 400 ml of clear yellowish content. Passive seroma drainage and bandaging of the abdominal wall lasted about 7 days and in both cases ended with recovery.

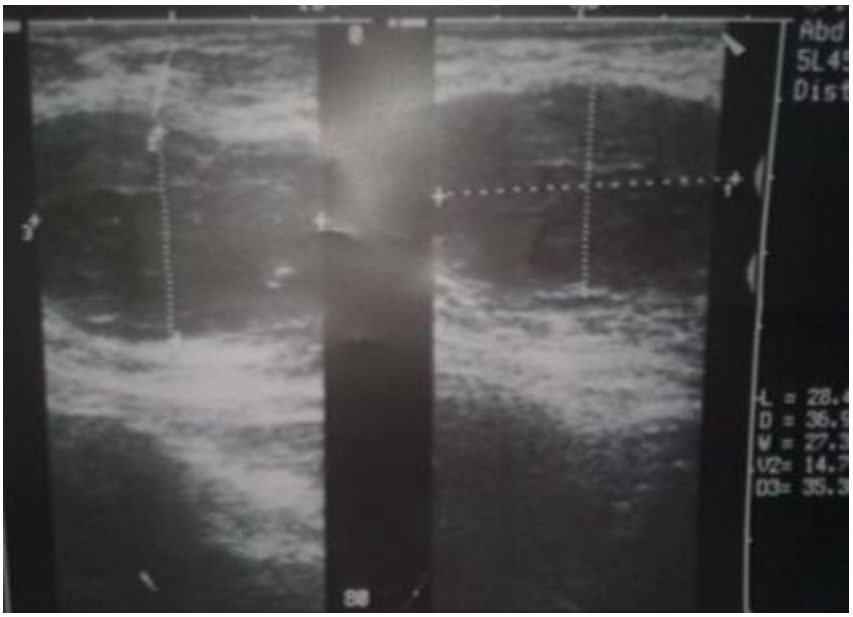

Figure 2. Ultrasonographic findings of seroma

In one 40-year-old patient, female, with a BMI of 33, two weeks after surgery seroma was formed with dimension 12 x 5 cm (ultrasonographic verification), which was treated with drainage, antibiotic therapy (amoxicillin and clavulanic acid) and abdominal bandaging.After two weeks, the seroma was withdrawn.

In the follow-up period of four years, seroma formation was found in one patient (Figure 3); there was a severe pain in the area of the wound. The following procedures were performed: ultrasonography, puncture biopsy and computed tomography. Ultrasound showed that there was an oval formation with dimensions 6 x 5 cm. An attempt was made for needle aspiration guided by ultrasonography and because the content was not obtained, additional examinations were indicated.

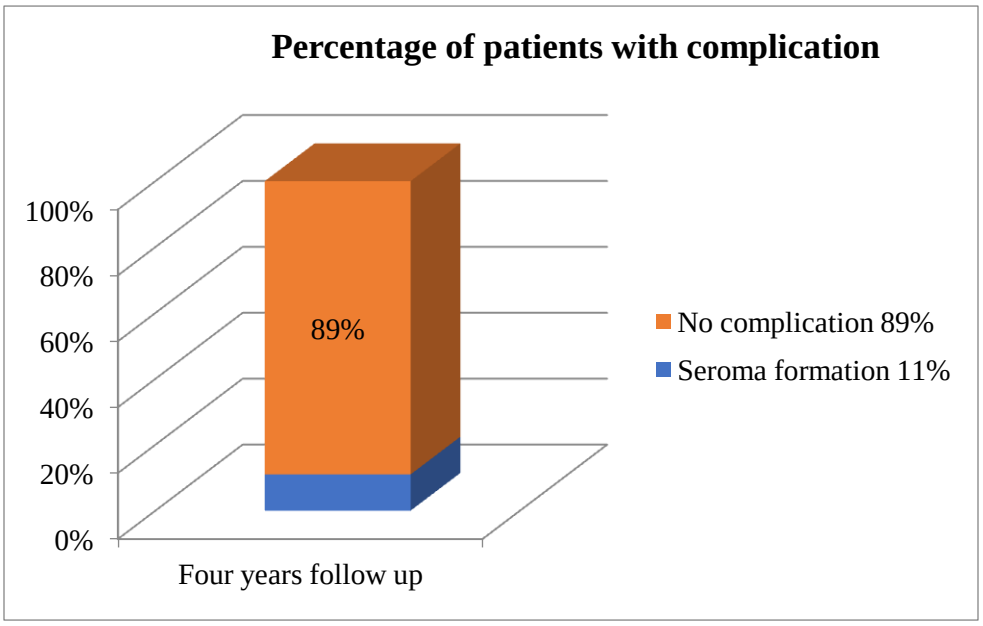

Figure 3. Four years follow-up for complications

Puncture biopsy was performed and a patohistological finding was chronic inflammation. Computed tomography detected seroma formation. Seroma was treated conservatively with antibiotics. Under the given therapy, the seroma was retreated (ultrasonographically verified), and the pain was withdrawn. Surgery was suggested, but the patient did not accept it. After one month,the results were satisfactory: subjective difficulties were withdrawn, feeling of firmness and traction, no pain. Ultrasonographic findings were in favor of seroma reduction. After 6 months, there was again pain and discomfort; antibiotic therapy was prescribed and the symptoms were withdrawn in a week.

Discussion

The technique used in this study was standard dermolipectomy, with skin flap formation, with a horizontal scar, and in one patient with a T scar. All patients underwent reinforcement of the anterior abdominal wall with placation, with individual sutures, and in patients with incisional hernia additionally polypropylene mesh. The first described technique for closing incisional hernias (Quenu, 1896; Judd, 1912) is still suitable for closing small incisional hernias. It is a technique with sutures in one or more layers[7].

The installation of a polypropylene mesh according to Van Geffen H.J. reduces the incidence of recurrences [8].

In the presence of infraumbilical incisional hernia, and at the same time the presence of excess skin on the anterior abdominal wall, there is a dilemma whether to perform dermolipectomyalong with hernioplasty in order to reduce the risk of complications.

Experience in the literature shows that both interventions performed simultaneously do not increase the risk of complications; authors present some other causes, and on the other hand, performing dermolipectomy improves the appearance of the torso.

In our study, as an early postoperative complication, seroma appeared in 23% of patients, and in the four-year follow up period, in one patient or in 11%. Seroma appeared in patients in whom no propylene mesh was placed. Due to the appearance of seroma in the postoperative period, the time of wound drainage was extended over 14 days and the hospital stay up to 17 days. Similar results are found in the literature. Hosam R *et al.* in their study of 53 patients who underwent both dermolipectomy and hernioplasty at the same time, the incidence of seroma was 9.5%, small area infections 3.8% treated with dressings and antibiotics, and severe infections and sepsis 1.9% [9].

Matos WN *et al.* [10] reported a lower percentage of seroma occurrence (only 1%). They stated that the cause for appearance of seroma was the applied surgical technique. Contrary to this, Mericli AF *et al*. published a paper in 2011 showing that percentage could be as high as 32%; they emphasized the body weight as a cause of complications and that this percentage was higher in patients with a higher BMI [11]. According to the American Association of Plastic Surgeons, the percentage of complications in abdominoplasty is 15% to 52%.

According to Downey SE*et al.*[12], the use of fibrin glue reduces the incidence of seroma.
In this study passive drainage for one week was applied regarding the seroma therapy. However, in the literature [13] the duration was up to 48 hours. We justify thisprolongated drainage with the fact that in larger studies after the first drainage, the need for re-drainage or needle aspiration of seroma was often imposed, which in turn carries the risk of infection. Literature reported air injection into the cavity after removal of the fluid and then compression of the region. Air is thought to act as an irritant and can help heal the cavity.

In our study, as a prevention and reduction of the possibility of seromaformation careful surgical technique, compression bandage and placement of two drains were used. Drainages are used for prevention of fluid accumulation. According to some authors, a good prevention against serum formation is to close the empty space with additional sutures, so-called progressive tension sutures, and without placing drainage. According to them, this technique dramatically reduces complications, including seromaformation [14,15]. But the very fact that only about 5% of plastic surgeons opt for this technique, and the rest for drainage, supports the latter. Some plastic surgeons mention the possibility of combining these two techniques, which would reduce the drainage period and increase the chances of better wound healing.

It is estimated that the possibility of seroma formation increases fourfold when the amount of tissue removed is greater than 700 grams [16].
An important factor is the patient's body weight. It has been statistically shown that the increased body weight increases the risk of developing seroma compared to patients with normal body weight [17].

A study was performed to see the correlation between patient immobilization and seroma formation. At the time of immobilization, patients had mechanical and thromboembolic prophylaxis and were divided into two groups: immobilized for up to 24 hours and up to 48 hours. The study concluded that 48 hours of immobilization significantly reduced the risk of seroma [18].

Conclusion

Weak muscles and excess skin on the anterior abdominal wall are a common complication after losing more than half of the body weight. Also, a certain percentage of abdominal surgeries have incisional hernias as a complication. Simultaneous surgery of dystrophy and hernia of the anterior abdominal wall and excess skin is an acceptable and safe surgery; it does not increase the risk of complications and is a method used in our hospital.

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