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Introductory Chapter: State of the Art in Hernia Surgery

Angelo Guttadauro

1. Introduction

After the introduction of prostheses, wall surgery has undergone a progressive evolution aiming both at the development of new techniques and at the study of new and more comfortable prosthetic materials. Until recently the repair of a wall defect was carried out by direct suture of the muscle-aponeurotic structures and related to a high incidence of recurrence and postoperative pain. With the use of prostheses, surgeons are now able to adopt techniques and technologies more respectful of the original anatomy and physiology, avoiding tension between the muscle and tendon structures. This allows to reduce drastically the incidence of recurrence. Laparoscopy and robotic surgery, when used with the correct indications, are less traumatic and invasive and reduce postoperative pain. The higher costs alleged to these procedures are, in some cases, at least partially mitigated by the patient's better postoperative course and to a more rapid resumption of his work.

2. Tailored surgery

Today there are numerous open and laparoscopic surgical techniques available for the treatment of the various types of wall defects. The choice of the most appropriate technique for a specific patient remains fundamental. The concept of "tailored surgery" is new in this field and is based on the fact that each type of hernia and each patient are different from the other. Therefore surgical procedures should not be chosen according to the normal protocols but based on the needs and characteristics of that specific patient such as age, physical constitution, life habits, and work activity, but above all the size and type of the hernia should be considered. This would allow an effective treatment with the best comfort for the patient, minimal hospitalization, and most rapid resumption of normal activities.

3. Problems

Among abdominal wall hernias, inguinal hernia repair is the most frequently performed surgical operation in all operating rooms around the world. Since the 1970s, one of the priorities in inguinal hernia surgery was that of minimizing postoperative chronic pain [1, 2]. All surgical techniques proposed during the few past years to improve patient's comfort reported a variable incidence of neuralgia [1–4] that, when persistent after 3–6 months from surgery, may compromise significantly the patient's quality of life. Pain may be related to the presence of the mesh that, depending on its size and location, may take contact with muscular structures or cause fibrotic entrapment of nerves when in subfascial position [5–7]. Studies

conducted on animals also showed perineural alterations with myelinic degeneration due to contact between nervous structures and the mesh [8], hence the necessity of identifying and dissecting subfascial nerves [9] and even of dividing them to avoid chronic pain [9, 10]. This led to the setting of guidelines for the prevention and treatment of chronic neurotic pain following inguinal hernioplasty [11, 12].

The all-in-one mesh hernioplasty technique [13], proposed by myself a few years ago, is a procedure that employs a smaller pre-cut single mesh that covers all weak areas of the inguinal canal and is enveloped in the fibro-cremasteric sheath, avoiding the contact of the prosthesis with neural structures. Because of its shape, the mesh is placed in a deeper site directly over the weak areas of the floor of the inguinal channel, and, although smaller, it doesn't seem to increase the rate of recurrence. The more common Lichtenstein technique provides that the prosthesis is laid on the transversalis fascia and fixed to the sides becoming necessarily underaponeurotic in the upper third. In our technique, the prosthesis is positioned and remains on the transversalis fascia being covered with the fibro-cremasteric sheath. The mesh is anchored to the inguinal floor by a single point at the pubic tubercle and comprises a section that is introduced inside the deep inguinal ring. Therefore the mesh is not directly underaponeurotic at any level, stays in place, and therefore does not require lateral fixation. In addition, the prosthesis is not in contact with the ilioinguinal and iliohypogastric nerves. This new procedure may have technical advantages and help less experienced surgeon to avoid pitfalls in dealing with nerves. According to our series, "all-in-one mesh" hernioplasty presents a low rate of long-term complications. Employing a smaller amount of prosthetic material, placed where no contact with nerves occurs, avoids neuralgia and sensation of foreign body.

4. Conclusion

The task of a good surgeon today is to know how to choose, based on your experience and taking into account innovation. The best technique correctly tailored on the patient guarantees the best results.

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