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Hernia and pregnancy: A symbiosis of two bumps

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ABSTRACT

One of the most common surgical entities, globally, is hernia. Even though it affects female population less often than men and its occurrence is rather exceptional during pregnancy, it must not be neglected, especially due to the difficulties in diagnosing this entity correctly in the gestation period. We conducted a review article based on data from 13 papers published between 2015 and 2021 which assessed the challenge of hernia diagnosis during pregnancy, available and recommended investigations for a proper diagnosis, potential complications that hernia might cause in pregnant patients, the appropriate treatment during pregnancy and the ideal moment for surgery, if necessary. It appears to be widely acknowledged that it is best to uphold surgical repair of hernia until after delivery. Nevertheless, there is no clinical guideline available on this matter and the existing studies are either case-reports or have used rather small group of patients, therefore future studies are of utmost necessity.

Keywords: hernia, watchful waiting, pregnancy, surgical repair

INTRODUCTION

A hernia refers to the protrusion of intraabdominal or extra peritoneal organs through an acquired defect produced in a lessened area of the myofascial stratum of the abdominal wall, as a consequence of an increased tension on this area and intraabdominal pressure [1,2,3]. Groin hernia has the highest incidence, with a worldwide ratio of 75% of all abdominal wall hernia [3] accounting for almost 27 to 43% cases among men and only 3 to 6% in women [3,4,5]. Surgery for inguinal hernia stands for one of the most common procedures on the globe [3,4,5]. It is a common knowledge that inguinal hernias occur mostly in men and femoral hernia in women [3]. With regard to pregnant population, hernias are rather uncommon to appear, however, inguinal or umbilical hernias stand for almost 1:2,000 cases, with an incidence of almost 75% occurring to multiparas [1,5,6].

There are multiple risk factors incriminated in the emergence of inguinal hernias (IH), among which the most important are family history of IH in first degree relatives, male gender (incidence of 8-10 times higher than in females), age (a top prevalence at the age of 5 and 70 respectively), connective tissue disorders and obesity (with the additional annotation that an increased body-mass index might underestimate the incidence of hernias due to the difficulty of diagnosis) [1,4,7,8]. Additional specified risk factors for the development of primary IH are previous surgery, race, contralateral hernia, chronic constipation, smoking and pregnancy (as a result of the increased intraabdominal pressure, as well as the hormonal changes) [1,4,9].

Although IH is a rather straightforward clinical diagnosis, pregnancy can frequently make it difficult for the physician to detect [1]. In addition, the management of IH in general population is relatively explicit, i.e., surgical repair as a decisive treatment, with the possibility of watchful waiting attitude in case of an asymptomatic hernia [3,4]. However, when the patient is at a fertile aged or

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pregnant woman, the management stands challenging because there is still no available guideline to clearly define optimal timing for surgical treatment of IH during pregnancy [1,10]. Most authors plead for the watchful waiting strategy during pregnancy, with the exception of complicated hernia cases which call for immediate surgery, while some take into account simultaneous cesarian delivery and hernia repair [1,5,6,7]. With respect to the surgical approach and technique, both open surgery and laparoscopy can be taken into account, as well as mesh or non-mesh procedure, depending on case's particularities [1].

One of the most important aspects of this co-occurrence is whether the presence of the hernia has any impact on the delivery mode. Several authors concluded hernia has no harmful effect on the course of pregnancy or delivery, therefore there is no need for cesarian delivery (CD) if the patient does not have an obstetrical reason for CD [11,12,13].

MATERIALS AND METHODS

We conducted a literature search in the PubMed, Embase and Cochrane Library databases and also web pages of American Pregnancy Association and British Hernia Centre in order to identify relevant information for this paper. We used the following search terms: "hernia and pregnancy", "inguinal hernia in pregnancy", "treatment of hernia in pregnancy", "diagnosis of hernia", "management of hernia in pregnancy", "hernia in female patients", "ventral hernia in pregnancy", "abdominal wall hernia in women". Relevant articles were considered the ones published between 2015 and 2021, assessing hernia diagnosis in female patients and particularly during pregnancy, available and recommended investigations for a proper diagnosis, possible complications hernias might cause in pregnant patients, the appropriate treatment during pregnancy and the ideal moment for surgery, if necessary. In the end 13 articles that met our criteria were found relevant for this publication.

DIAGNOSIS OF HERNIA IN PREGNANCY

Physical examination still represents the foremost method of assessment for hernia in general population, although there are situations when radiologic investigations might be necessary in order to correctly diagnose this condition [3,7]. A subsequent pregnancy makes the diagnosis genuinely challenging due to the fact that hernia's clinical manifestations might be attributable to pregnancy itself. Thereby, nausea, emesis, pain or elevated white blood cells count constrain the physician to a truly thought-provoking process in order to distinguish between gravid uterus distress and hernia-related symptoms necessitating surgery [1,2]. In such a case, radiologic investigations are essential. Ultrasound would be the best imaging examination in terms of radiation exposure and invasiveness, only pregnancy and obesity are associated with a diminished sensitivity of this technique, alongside the fact that it is operator-dependent. Likewise, computed-tomography (CT) and other X-ray investigations should ideally be avoided during pregnancy despite their usefulness in general population. In addition, magnetic resonance imaging (MRI) might be considered in order to identify the right diagnosis among pregnant women, hence it must not be neglected its limited availability and cost-effectiveness [1,3,4,6,7].

ROUND LIGAMENT VARICOSITY MISINTERPRETED AS INGUINAL HERNIA

Any inguinal protrusion during pregnancy is oftentimes incorrectly interpreted as inguinal hernia. There is a wide variety of pathologies whose clinical manifestation is an inguinal mass, such as round ligament varicosities (RLVs), lipoma, femoral hernia, hydrocele of Nuck's canal, malignant soft tissue tumors, abscesses, extra genital endometriosis, vascular aneurism, adenopathy [8,14,15].

Every swelling in the groin area of a pregnant woman should be evaluated by ultrasound, given the difficulty to differentiate between RLV and IH only by clinical examination [14,16]. Typical US signs of RVL consist of the missing intestine from the inguinal canal, the presence of engorged vessels in the inguinal canal and the characteristic image of "bag of worms" of the varices [14,17].

This pathology usually becomes clinically evident during the second trimester of pregnancy and its occurrence must guide the physician to the correct diagnosis, considering that the expanding uterus pushes aside the intraabdominal organs that could probably become the content of a hernia sac [8,14,17]. Nonetheless, the distension of the uterus during pregnancy also generates an obstruction of blood flow in the pelvis which, in conjunction with the progesterone-induced relaxation of the muscular layer of blood vessels, causes RLV [8,14].

Typically, this condition has an impromptu regression after delivery, therefore conservative treatment should be taken into consideration unless signs of complicated RLV, i.e., thrombosis or tear emerge [8,14,15,16,17].

OPTIMAL MANAGEMENT OF HERNIA DURING PREGNANCY

To the present day, no clinical guidelines have been issued to define specific recommendation re-

garding when and how to treat hernia in pregnant patients [1,10]. Nevertheless, the majority of authors sustain the avoidance of elective surgery for hernia during pregnancy, unless signs of complication appear [1,2,13,18,19,20].

Whilst in general population it is clearly stated that surgery, more precisely laparoscopic approach, is the optimal treatment for hernia, when it comes to fertile aged female patients things become slightly delicate [1,4,19,20]. Timing of surgical repair remains the most debated matter on this area of discussion, given the controversies that do not cease to exist: on one hand, surgical repair should be postponed until after delivery or it should be performed before pregnancy if the patient had been diagnosed with hernia prior to becoming pregnant; on the other hand, pre-pregnancy repair of a hernia might increase the risk of recurrence, therefore many authors plead for reserving the elective repair until after the last pregnancy [1,10,18]. Undoubtedly, in case of acute complications, namely strangulation or incarceration, emergency surgery is required [1,6,18,20]. However, if the hernia does not present signs of complication, but it heavily affects patient's comfort and well-being, the operation can be performed, but it would be wise to delay it at least until second trimester [1,2].

Furthermore, if surgery occurs during pregnancy, a further aspect must be taken into account, specifically when is it ideally to perform the hernia repair since each trimester carries pros and cons. In this regard, several authors consider optimal moment to be after the completion of organogenesis, i.e., in the second trimester [1,2,21]. It is preferable to avoid surgery during the first and third trimesters due to the increased risk of teratogenicity and preterm labor respectively [21]. Moreover, there are two studies published in 2015 and 2016 which reveal the possibility of associated hernia repair and caesarian section [5,6]. Surgit et al. [5] and Jensen et al. [6] highlighted in their articles the advantages of performing these operations simultaneously, these being single incision and anesthesia, medical costs, no higher rate of perioperative complications, as well as the chance of not splitting up the mother and the baby due to the need for a second surgical procedure.

Surgical approach when referring to pregnant patients also represents a disputable topic. Even though the superiority of laparoscopy is acknowledged in the medical community, there are authors who stand for classic approach from the end of the second trimester [22]. In contrast, as previously mentioned, the benefits of laparoscopic technique are well established and are common for both non-pregnant and pregnant patients: shorter hospitalization, diminished postoperative pain leading to decreased need for analgesic intake, which means less fetal respiratory distress, rapid recovery, smaller chance of postoperative adhesion development due to less maneuvering of the intestinal tract, superior view of the operation field, better aesthetics due to smaller incisions, as well as a reduced risk of developing incisional hernia or wound complications [2,21]. One important detail concerning the surgical repair of a hernia during pregnancy is represented by which surgical technique is ideal: mesh or suture. Danawar et al. [1] outlines in their article published in 2020 the superiority of mesh repair, in spite of its drawbacks (possible pain in the last trimester of the following pregnancy or higher risk of infection). Nevertheless, suture technique can cause pain during consequent pregnancy too, even more, provides a higher risk of recurrence.

DISCUSSION

Hernia repair, particularly for groin hernia, is one of the most commonly performed surgeries worldwide, with a frequency of 8 to 10 times greater in men than in women [7]. Possible justifications for this might be, on one hand the higher incidence of IH among men, on the other hand the fact that all symptomatic hernias in male population benefit from surgical repair, with no delay as in the case of women. As previously mentioned, when dealing with pregnant patients, surgery must be postponed ideally until after delivery, if possible, in order to avoid unneeded risks an elective operation might induce [1,13,19]. If hernia is diagnosed in a fertile aged patient who desires future pregnancies, if not symptomatic it is advisable to suspend operative repair until no succeeding pregnancies intended or, in case symptoms develop, elective surgery is indicated, with the annotation of deferring pregnancy at least 1or 2 years [1,12,23].

When it comes to complications, unfavorable outcomes might occur on the ground of the natural evolution of the hernia, but also for reasons of postoperative consequences [1,10]. In the little prospect, yet possible event of strangulation or incarceration, both mother and fetus might be seriously affected by the immediate need for emergency surgery and anesthesia, risk of hernia rupture or intestine necrosis, sepsis, preterm labor, pregnancy loss or even maternal death [10]. With regard to postoperative complications, there is a high possibility of chronic pain, especially during the third trimester which can be attributable to mesh use, leading to a reduced laxity and elasticity of the abdominal wall, although pain has been described in case of suture repair as well [1,6,7,23]. In addition, depending on the surgical technique, there might be an increased risk of recurrence which has been described to be

higher if using suture repair [1,6,10,12]. What is more, Oma et al. [23] affirm in their article published in 2018 that non-obstetric surgeries during pregnancy, in this case hernia repair procedures, do not carry any additional poor obstetrical outcomes. Alongside, several authors and medical associations highlight and encourage the opportunity of vaginal delivery in spite of the coexistence of the hernia, yet surely pleading in favor of CD when obstetrical indication exist [11,13].

CONCLUSIONS

By way of conclusion, albeit hernia amongst female population has a small incidence, the probability of occurrence exists, therefore it must not be neglected. The concomitant pregnancy and hernia can rise difficulties in establishing the right diagnosis in a way that it is of the utmost importance to distinguish between hernia and other pathologies with similar clinical manifestations, among others round ligament varicosity, in order to avoid unnecessary surgical procedure and subsequently otherwise preventable associated risks.

At the same time, unless emergency surgery is required due to inevitable complications of a hernia, the more suitable and advisable attitude towards hernia during pregnancy is watchful waiting.

Ultimately, given the fact that medical communities have not yet reached to a consensus regarding clinical practice in case of hernia during pregnancy and the available studies on this subject are insufficient, it is common sense to admit that forthcoming studies are mandatory in order to elaborate a standardized guideline concerning hernia management during pregnancy.

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