Decidual changes outside the endometrium, first described by Walker in 1887, are named as deciduosis or ectopic decidua (Walker, 1887; Bolat et al., 2012). Such changes most commonly affect ovaries, peritoneum, and the pelvis, including fallopian tubes, uterine serosa, cervix, and diaphragm (Bolat et al., 2012). Deciduosis is less frequently seen in the appendix (Adhikari and Shen, 2013). The involvement of omentum is considered rare by some authors (Adhikari and Shen, 2013), while others suggest that it could be a common finding, if careful sampling would be possible (Buttner et al., 1993; Rodriguez et al., 2006). Deciduosis can be found incidentally in tissues removed or biopsied during a cesarean section, treatment of tubal pregnancy, elective tubal ligation or appendectomy (Bolat et al., 2012).

DECIDUOSIS OF THE APPENDIX MANIFESTING AS ACUTE ABDOMEN IN PREGNANCY

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AIM OF THE DEMONSTRATION

In order to increase the awareness of rare appendicular diseases and the peculiar differential diagnosis of appendicitis in pregnancy, we present a rare case of appendicular deciduosis causing acute appendicitis in a pregnant lady.

CASE REPORT

A 33-year-old primigravida woman entered the hospital in 28/29 weeks of gestation. The patient reported right lower abdominal pain lasting for 11 hours. Initially, preterm delivery was suspected. The body temperature was 37.2°C. The white blood cell count was 16.7x10^9/L (laboratory reference interval (LRI) 4 – 10). The level of C-reactive protein (CRP) reached 27.4 mg/L (LRI 0 – 5). The abdominal ultrasonography showed picture of acute appendicitis as the appendix had thickened wall and was surrounded by a small amount of liquid. Gross intraoperative findings were suggestive of gangrenous appendicitis. Conventional appendectomy was performed. The postoperative period was uneventful. The patient received analgetic and antibiotic therapy. Fetal movements were monitored and sensed well. Uterus was normotonic. There was no abdominal pain except sensitivity around the surgical wound by palpation. By pathologic examination, the removed appendix grossly measured 6 x 1.2 x 0.8 cm and showed uneven surface. Microscopically, gangrenous appendicitis was revealed along with perforation and wide areas of deciduous ectopic reaction s. deciduosis (Fig.1), characterised by nodules of discohesive large polygonal cells with widespread degenerative cytoplasmic vacuolisation resulting in signet ring cell like appearance. Acute inflammation with fibrinous and purulent component extended to the periappendicular and mesenteriolar tissues. By immunohistochemical investigation (IHC), the large polygonal and vacuolated cells in pathologic foci expressed progesterone receptors and vimentin but lacked pan-cytokeratin and calretinin. Thus, IHC confirmed deciduosis and ruled out malignant tumour. The differential diagnosis over the whole course of illness comprised acute appendicitis, preterm delivery, cancer, acute pyelonephritis or rupture of ovarian cyst. However, considering the intraoperative surgical findings as well as morphological and IHC data, the final diagnosis was appendicular deciduosis, complicated by gangrenous appendicitis and phlegmonous periappendicitis and mesenteriolaritis.

DISCUSSION

Development of decidual cells outside the endometrium, first described by Walker in 1887, is named ectopic decidua or deciduosis (Walker, 1887; Bolat et al., 2012). Such changes most commonly affect ovaries, uterine serosa (Kondoh et al., 2012), fallopian tubes and cervix (Bolat et al., 2012). Deciduosis is less frequently seen in the appendix (Adhikari and Shen, 2013), diaphragm, liver, spleen, paraaortic and pelvic lymph nodes or renal pelvis (Bolat et al., 2012). The involvement of omentum is considered rare by some authors (Adhikari and Shen, 2013), while others suggest that it could be disclosed frequently, if careful sampling would be possible (Buttner et al., 1993; Rodriguez et al., 2006). Deciduosis can be found incidentally in tissues removed or biopsied during a cesarean section, treatment of tubal pregnancy, elective tubal ligation and appendectomy (Bolat et al., 2012).

The pathogenesis of deciduosis is not yet fully understood (Kondoh et al., 2012) and the physiologic nature of this reaction is considered controversial (Bolat et al., 2012). The most frequently suggested explanations include de novo development from submesothelial stroma, or decidual transformation of pre-existing endometriosis (Bolat et al., 2012; Kondoh et al., 2012; Adhikari and Shen, 2013). The de novo pathway would involve progesterone-related subserosal stromal metaplasia. Confirming the role of hormonal influences, deciduosis regresses within 4 – 6 weeks after pregnancy along with decidual involution (Bolat et al., 2012). High level of progesterone in twin gestations has been attributed to diffuse peritoneal deciduosis in such patients (Adhikari and Shen, 2013). Occasionally, deciduosis in non-pregnant ladies has been explained by adrenal progesterone secretion acting on submesothelial.
of acute appendicitis in pregnancy is estimated as 0.05 – 0.13% (Kirschtein et al., 2009; Chung et al., 2013). Thus, appendicitis must be considered as the cause of acute abdomen during pregnancy. Cases of deciduosis manifesting by abdominal pain, leukocytosis and elevated CRP level necessitate even more careful consideration of appendicitis in the differential diagnosis (Kondoh et al., 2012). The history of the described case shows an additional novel, clinically highly important fact – the appendicitis can also be true complication of deciduosis.

In conclusion, deciduosis is a rare, pregnancy-related process that in rare cases can affect appendix. In our patient, gangrenous inflammation supervised necessitating urgent appendectomy. Thus, deciduosis should be considered in the differential diagnosis of acute abdomen in pregnancy.

**Conflict of interest:** None

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Fig. 1. Appendicular deciduosis. A, Overview of the affected tissue. Note the nodular foci of deciduosis. Haematoxylin-eosin (HE), original magnification (OM) 50x. B, Cell morphology of the decidual foci. Note the intact deciduoid cell (yellow arrow) and the degenerative changes resulting in signet ring cell like appearance (green arrow). HE, OM 400x. C, Expression of progesterone receptors (PR) in deciduoid cells. Immunoperoxidase, anti-PR, OM 100x. D. Purulent inflammation (arrow) surrounding a deciduoid cell (yellow arrow). HE, OM 400x.