

Acute Appendicitis during Pregnancy: About 6 Cases

Mehdi laaouze, Sarah seghrouchni idrissi, karam mohammed saoud, Mamouni Nisrine, Sanae Errarhay, Bouchikhi Shehrazad, Abd Aziz Banani

Department of Gynecology, Hassan II Teaching Hospital,

Abstract: Introduction : Appendicitis accounts for 25% of non-obstetrical surgical emergencies during pregnancy. its diagnosis remains relatively difficult given a range of differential diagnoses and the altered status of the appendix during pregnancy. delay in management remains the main FDR for maternal-fetal mortality. The aim of our work is to describe the particularities of appendicitis in the pregnant woman in terms of its evolution and clinical diagnosis, the performance and limitations of conventional diagnostic tools during pregnancy, to describe the particularities of an appendectomy intervention during pregnancy and the risks incurred for the mother and the fetus by appendicitis and its treatment. **Material and method :** This is a Retrospective Study on 6 cases carried out at the level of the Gyneco-Obstetrics Department 1, CHU Hassan II Fez over a 9-year period from January 2011 to December 2020. **Conclusion :** The symptoms of A.A resemble the symptoms of pregnancy, namely: anorexia, vomiting, nausea and abdominal pain. The delay of surgery results in an increased risk of perforation which in turn contributes to an increased risk of: Abortion, premature delivery, higher rate of maternal complications. Prompt diagnosis can improve perinatal health.

Keywords— Appendicitis - Pregnancy - Maternal-fetal prognosis.

1. INTRODUCTION

Acute appendicitis is the most common non-obstetric abdominal surgical emergency during pregnancy [1]. It occurs in a context of febrile abdominal pain during pregnancy and wrongly evokes acute pyelonephritis with an atypical symptomatology, even less classical than outside pregnancy. The main objective of this work was to describe the clinical, biological, radiological, therapeutic and evolutionary particularities of acute appendicitis during pregnancy..

2. MATERIAL AND METHOD :

We conducted a retrospective study from 2011 to 2020 on 6 cases of acute appendicitis diagnosed and treated at the Department of Obstetrics and Gynecology I of the Hassan II University Hospital in Fez. Epidemiological, clinical, ultrasound, therapeutic and evolutionary data were collected on an operating sheet from the patients' medical records.

3. RESULTS

During the study period, 6 cases of acute appendicitis were diagnosed and managed in the department, representing 0.1% of all consultations and 1.2% of pregnancies at risk. The average age was 25 years with extremes of 24 and 30 years. Four (4) patients were primiparous, i.e. 66.6%, and 3 patients were pauciparous, i.e. 33.4%. Appendicitis occurred in the first trimester in 2 patients, 3 in the second trimester and 1 in the third trimester. The symptomatology was variable from one patient to another: it was manifested by pain in the right iliac fossa (4 cases), diffuse abdominal pain (2 cases), fever above 38 in almost all our patients, and vomiting in all our patients.

On the biological level: the blood count (CBC) and a C-reactive protein (CRP) assay were performed in all patients. Hyperleukocytosis was found in all our patients between 15000 and 24000/mm³ and a PNN rate >80% with a positive CRP in 100% of cases.

All our patients had a negative returning UCE. All patients in the series received abdominal ultrasound which was sufficient to confirm the diagnosis in all 5 patients and abdominal CT scan was used to confirm the diagnosis in 1 patient. The management was medico-surgical in all cases with analgesics, antipyretics, antispasmodics, antibiotics (amoxicillin clavulanic acid, ceftriaxone, flagyl), anticoagulants and tocolytics. The surgery consisted of an appendectomy in all cases by laparotomy. Tocolysis in our context was systematic and the tocolytic agents used were ventolin in all patients; tocolysis was performed during the surgical procedure and continued 5 days after surgery. The postoperative evolution of our patients was favorable, the duration of hospitalization at été was 4.5 ± 3.9 days (extremes: 3 and 9 days). Maternal mortality and morbidity was nil.

4. DISCUSSION

Appendicitis accounts for 25% of non-obstetric surgical emergencies during pregnancy with a prevalence during pregnancy that is low, in the order of 0.05% to 0.1% in the western series [3, 4]; it has été of 0.1% in our study. As in the series of Nouria et al [2], we have observé that the first two trimesters of pregnancy were the most affected (5 cases). This is not the case for Halvorsen et al [5] who have rapporté a series of 12 appendectomies equally distributed in the 2nd and 3rd trimesters of pregnancy, which means that gestational age does not seem to have an impact on the occurrence of acute appendicitis.

Acute appendicitis poses a diagnostic problem during pregnancy, its clinical suspicion remains difficult despite the atypical symptomatology. Clinical and biological symptomatology may be atypical during pregnancy [6]. As reported in other series, the preoperative diagnosis of acute appendicitis is most often inaccurate during pregnancy. Clinical diagnosis is challenging for clinicians because of the physiological and anatomical changes associated with pregnancy [7, 8].

In our study the symptomatology was dominated by fever and pain localized to the right iliac fossa, followed by vomiting. In most studies pain and fever were the main symptoms. Aggenbach et al [11] reported a predominance of right iliac fossa pain in 95% of cases and vomiting in 90% of cases. Abdominal pain is the most consistent sign according to Lebeau et al [9]. Abdominal pain is the most consistent sign according to Lebeau et al. [9], as it was found in all patients in their series. However, this pain may lead to discussion of a threat of premature delivery or acute pyelonephritis. Hence the interest of conducting more investigations in order to avoid misdiagnosis. For some authors, the difficulty of diagnosis increases with gestational age. During the 1st trimester and the 2nd when the uterus has not increased in volume the symptomatology does not differ from that of the woman outside of pregnancy. It is simply limited to the IDF pain associated with febrile syndrome, since nausea and vomiting are frequent in early pregnancy and their presence does not help in the diagnosis [9]. During the third trimester, patients report more lateralized flank pain. The appendix remains in the IDF in the first trimester and rises gradually with gestational age until it reaches the mid-abdomen in late pregnancy [10].

All patients in our series had a Blood Formula Count, more than half of whom had hyperleukocytosis greater than 15,000; CRP was positive in all patients. These laboratory tests are difficult to interpret during pregnancy because of physiological hyperleukocytosis, but CRP can be normal. However, these two tests remain unreliable and are of little diagnostic value during pregnancy [12,13]. All our patients came back negative for UCE. Its indication is related to the clinical difficulty of making the diagnosis and to the fact that we made diagnostic hypotheses of acute pyelonephritis due to the urinary symptomatology of some patients in the series. All patients in the series were given an abdominal ultrasound showing simple acute appendicitis in 5 patients. Abdomino-pelvic ultrasound confirmed the diagnosis when it showed an incompressible appendix more than 7 mm in diameter, aperistaltic with a parietal thickness of more than 3 mm and sometimes fluid in the appendix lumen [14-15].

This examination being a dependent operator, it must be carried out by a trained operator. It may also reveal indirect signs such as an effusion in the right iliac fossa or Douglas' cul-de-sac. This examination was of great help in confirming the diagnosis in 5 of our patients. Its interest is also to eliminate an associated adnexal or obstetrical pathology, to

document the pregnancy by specifying the gestational age and fetal vitality. In one patient, abdominal CT scan was used to confirm the diagnosis, which represents a sensitivity of >90% and a specificity of >95%. Its use during pregnancy should be limited for fear of increasing the risk of developing childhood cancers and the possibility of interfering with organogenesis, particularly between the 2nd and 15th week of amenorrhea [16].

The treatment of appendicitis during pregnancy remains surgical [10]. Management is often multidisciplinary, involving a team of surgeons and obstetricians [14]. Patients in our series benefited from medico-surgical and multidisciplinary management by a mixed team of visceral surgeons and obstetrician-gynecologists.

Therapeutically, all appendectomy patients were operated on by laparotomy. Surgical technique depends on several factors including gestational age, stage of disease progression, patient obesity, history of abdominal surgery and surgeon preference. In the first trimester, an enlarged Mac Burney incision, if necessary, allows the appendectomy to be easily performed, while in the last two trimesters the incision must be higher, located in the right flank. These high incisions help to resolve the operative difficulties associated with cecal migration in the second and third trimesters [10]. The postoperative course of an appendicitis operated on during pregnancy is usually without particularities. The rate of premature delivery in cases of appendicitis during pregnancy is around 20%, and the risk is even higher during the first week after appendectomy [2]. As we see in our study, maternal mortality due to appendicitis is almost zero. This mortality would be due to the occurrence of perforation complications or unknown peritonitis leading to an infectious state resulting in septic shock with the contingent of multivisceral failure and hemodynamic instability. Fetal mortality was also nil in our study, unlike that observed in other studies where it is of the order of 2-8.5% and increases up to 35% in cases of perforation and peritonitis [18-19]. This zero mortality in our study could be explained by the early diagnosis and the rapidity of treatment.

5. CONCLUSION

Acute appendicitis in pregnant women is a rare condition and relatively difficult to diagnose. In the first trimester, the diagnosis is easy, the treatment simple and the prognosis generally good. In the last 2 quarters, difficulties in diagnosis are responsible for severe forms and aggressive surgical treatment. Pelvic ultrasound and cytobacteriological examination of the urine should be systematic in case of abdominal pain in pregnant women. Diagnostic doubt requires surgical exploration.

6. REFERENCES

- [1] Miloudi N, Brahem M, Ben Abid S, Mzoughi Z, Arfa N, Tahar Khalfallah M. Acute appendicitis in pregnancy : specific features of diagnosis and treatment. Journal of

- Visceral Surgery. 2012;149(4):e275-e279. Google Scholar
- [2] Nouira M, Jerbi M, Sahraoui W, Mellouli R, Sakhri J, Bouguizane S et al. Appendicite aiguë chez la femme enceinte : à propos de 18 cas. Rev Fr Gynecol Obstet.1999;94:486-91. Google Scholar
- [3] Leroy JL. L'appendicite aiguë au cours de la gravidopuerpé-ralité : les difficultés du diagnostic et du traitement. Med Chir Dig 1981; 10: 143-7.
- [4] Maisonnette F, Dubayle G, Aubard Y, Baudet JH. Appendicite aiguë au cours des deux derniers trimestres de la grossesse. Rev Fr Gynecol Obstet 1999; 94: 66-9.
- [5] Halvorsen AC, Brandt B, Andreassen JJ. Acute appendicitis in pregnancy: complications and subsequent management. Eur J Surg 1992; 158: 603-6.
- [6] Daniel M, Brent T, Cori-Ann Hirai M, Takamori R. Case report and management of suspected acute appendicitis in pregnancy. Hawaii Med J.2011;70(2):30-2. Google Scholar
- [7] Freeland M, King E, Safcsak K, Durham R. Diagnosis of appendicitis in pregnancy. Am J Surg. 2009 Dec;198(6):753-8. PubMed | Google Scholar
- [8] Gilo NB, Amini D, Landy HJ. Appendicitis and cholecystitis in pregnancy. Clin Obstet Gynecol. 2009;52:586-e596. Google Scholar
- [9] Lebeau R, Diané B, Koffi E, Bohoussou E, Kouamé A, Doumbia Y. Appendicite aiguë et grossesse : à propos de 21 cas. J Gynecol Obstet Biol Reprod (Paris). 2005 Oct;34(6):600-5. PubMed | Google Scholar
- [10] Lt Col Chawla S, Lt Col Shakti Vardhan, Brig Jog SS. Appendicitis during pregnancy. MJAFI. 2003;59:3.
- [11] Aggenbach L, Zeeman GG, Cantineau AEP, Gordijn SJ, Hofker HS. Impact of appendicitis during pregnancy: no delay in accurate diagnosis and treatment. International Journal of Surgery. 2015;15:84-89. PubMed | Google Scholar
- [12] Carlin A, Alfirevic Z. Physiological changes of pregnancy and monitoring. Best Pract Res Clin Obstet Gynecol. 2008;22(5):801-23. PubMed | Google Scholar
- [13] Tamirel P, Kessler N, Blayac PM, Lesnik A, Gallix B, Bruel JM. Imagerie de l'appendicite. Échographie, scanner ou rien du tout. J Radiol. 2002;83:1952-60. Google Scholar
- [14] Flexer SM, Tabib N, Peter MB. Suspected appendicitis in pregnancy. Surgeon. 2014 Apr;12(2):82-6. PubMed | Google Scholar
- [15] Long SS, Long C, Lai H, Katarzyna Macura J. Imaging strategies for right lower quadrant pain in pregnancy. AJR Am J Roentgenol. 2011 Jan;196(1):4-12. PubMed | Google Scholar
- [16] Shetty MK, Garrett NM, Carpenter WS, Shah YP, Roberts C. Abdominal computed tomography during pregnancy for suspected appendicitis: a 5- year experience at a maternity hospital. In Seminars in Ultrasound,CT and MRI. Philadelphia: WB Saunders; 2010;31(1):8-13.
- [17] Tshibangu Kangu K, Alardo JP, Liselele-Bolemba L, Makanya K, Sinamuli K. Risque foeto-maternel de l'appendicite et grossesse en Afrique centrale. Ann Soc Belg Med Trop. 1985;65(4):369-72. PubMed | Google Scholar
- [18] Doberneck RC. Appendectomy during pregnancy. Am Surg. 1985 May;51(5):265-8. PubMed | Google Scholar
- [19] Tshibangu Kangu K, Alardo JP, Liselele-Bolemba L, Makanya K, Sinamuli K. Risque foeto-maternel de l'appendicite et grossesse en Afrique centrale. Ann Soc Belg Med Trop. 1985;65(4):369-72. PubMed | Google Scholar