



Incidental Neuroendocrine Tumor Excised during Cesarean Section: Case Report

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Abstract

Cesarean section is one of the most common operations performed worldwide. Currently, elective appendectomy during c-section is not routinely performed, but it seems to be beneficial in case of extended diameter of appendix above 6 mm. The preoperative detection rate of appendiceal tumors is low, ranging from 6.6% to 25%. Neuroendocrine Tumor (NETs), arising from neuroendocrine cells, are rare tumors usually detected in advanced stage. Experience of NETs in pregnancy is very limited and largely limited to case reports or case series only.

This report presents the case of a young female with NETs of the vermiform appendix incidentally discovered during cesarean section. A 27-year-old female, diagnosed with gestational diabetes mellitus, was referred to the hospital at 40 week of gestation because of preterm rupture of membranes. Cesarean section was carried out for maternal indications-suspicion of the cephalo-pelvic disproportion. During a revision of abdomen, about 2 cm tumor of vermiform appendix was found, therefore simultaneous appendectomy was performed. In preoperative period patient shown no apparent symptoms related to appendiceal mass. A detailed histopathological examination revealed the presence of well-differentiated neuroendocrine tumor G1 pT1b.

Summarizing, careful revision of abdomen including appendix may improve maternal outcomes in terms of asymptomatic tumors diagnosis. Routine inspection of appendix should be a vital step during cesarean section.

Introduction

Cesarean section is one of the most common operations and percentage of this birth way is still growing in Poland. Above 30% of births is ended by cesarean section.

Some authors suggest performing elective appendectomy during the cesarean section [1]. In their opinion it can be given safely to elective appendectomy at the time of cesarean delivery in selected cases. If the diameter of the appendix is observed greater than 6 mm, appendectomy should be performed [2]. The preoperative detection rate of appendiceal tumors is low, ranging from 6.6% to 25% [3]. Many malignant appendiceal tumors, including appendiceal adenocarcinoma, are diagnosed at an advanced stage, thus resulting in their poor prognosis. It is indeed important to precisely detect appendiceal tumors at an early stage. Neuroendocrine Tumor (NETs) arise from neuroendocrine cells which are distributed widely in the body hence the spectrum of tumors. NETs are rare but are increasing in incidence. Recent data from providing an estimated annual incidence of 4-5/100,000 and prevalence of 35/100,000 across all tumor sites. NETs affect men and women in roughly equal numbers with a peak incidence in middle age. Experience of NETs in pregnancy is very limited and largely restricted to isolated case reports or case series only [4].

Case Presentation

A 27-year-old female, diagnosed with gestational diabetes mellitus, was referred to the hospital September 25, 2016 at 40 week of gestation because of preterm rupture of membranes. Cesarean Section was carried out for maternal indications-suspicion of the cephalo-pelvic disproportion. 3760 g, 10 Apgar scores female was born. During a revision of abdomen, 18 mm tumor of vermiform appendix has been found, therefore simultaneous appendectomy was performed. In preoperative

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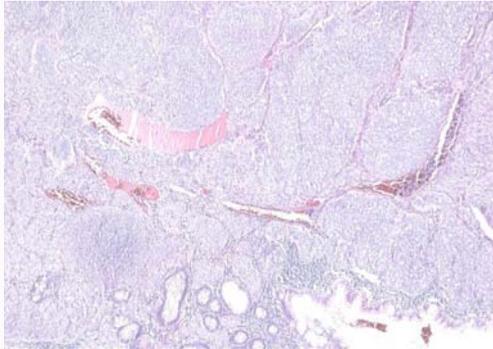
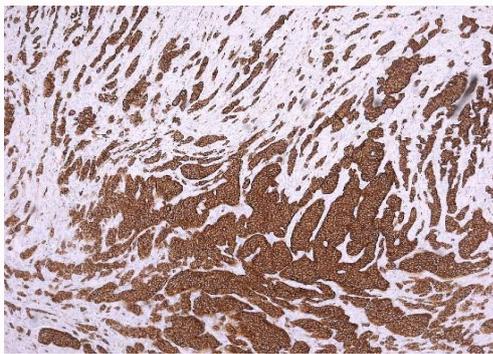
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Table 1: 2010 World Health Organization (WHO) grading.

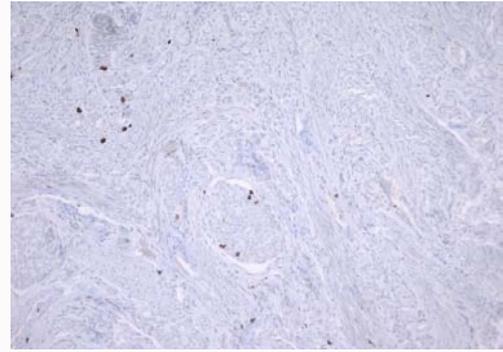
	Well-differentiated (NET)		Poorly differentiated (NEC)
Tumor grade	1	2	3
Ki-67 index (%)	<3	3-20	>20
Mitotic count (per 10 HPF)	<2	2-20	>20

**Figure 1:** HE - hematoxylin-eosin staining (4 × -20 × lenses). Visible tumor infiltrate that forms nodes and trabecular systems within the appendage wall.**Figure 2:** Chromogranin/synaptophysin - positive result of immunohistochemical reaction for chromogranin and synaptophysin.

period patient shown no apparent symptoms related to appendiceal mass. Postoperative course without complications. The patient was discharged home at 4 days of hospitalization.

A detailed histopathological examination revealed the presence of well-differentiated neuroendocrine tumor G1 pT1b. The cut has been done in the area of healthy tissue. In the histological picture the tumor has been located submucosally with the infiltration of the muscular wall of the appendix and the focal mesoappendix. The cells formed the island under the microscope. Ki67 -about 1% in hot-spots/2000 cells (Figure 1-3). Mitotic activity 0/10 HPF (Table 1).

After diagnosis, the patient was under the care of the Oncology Surgery Clinic. Performed, among others PET examination that did not show any other out breaks of the disease. The patient is still under the protection of the specialists.

**Figure 3:** Ki67-positive reaction in about 1% of cells.

Discussion

Tumors of appendix, especially NET's, are rare. On the other hand, cesarean sections are most common abdominal operations in the world. We would like to emphasize the significance of performing careful and detailed postoperative histopathological examinations in order to identify occult appendiceal tumors in a timely manner, as well as performing routine preoperative examinations and intraoperative inspections. A precise diagnosis can lead us to carry out adequate and timely surgical procedures, and accordingly improve the prognosis of patients with appendiceal tumors.

Conclusion

1. During each caesarean section, the entire abdominal cavity and accessible organs should be inspected.
2. Every cut of the mass should be thoroughly examined histopathological.

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