



## Caesarean Hysterectomy for Cervical Cancer Complicating Pregnancy: Life-Saving Procedure or Hazardous Choice?

Castellani C<sup>1</sup>, Di Loreto E<sup>1</sup>, Perugino G<sup>1</sup>, Orsi M<sup>1</sup>, Preti EP<sup>2</sup>, Ramezzana IG<sup>1</sup>, Polverino G<sup>1</sup>, Cribiù FM<sup>3</sup>, Ossola MW<sup>1</sup> and Scarfone G<sup>1\*</sup>

<sup>1</sup>Department of Gynecology and Obstetrics, IRCCS Ca 'Granda Foundation, Maggiore Policlinico Hospital, Italy

<sup>2</sup>Department of Gynecology, European Institute of Oncology, Italy

<sup>3</sup>Department of Pathology, IRCCS Ca 'Granda Foundation, Maggiore Policlinico Hospital, Italy

### Abstract

Cervical cancer is the most common pregnancy-associated gynecological cancer. Owing to the absence of randomized trials the management remains subject of debate, and it must consider also the gestational age at diagnosis, the patient's wish to continue the pregnancy and to preserve future fertility. Here, we report a 43-year-old primipara who was referred to our institution at 34 weeks of gestation with a diagnosis of moderately differentiated adenocarcinoma of the uterine cervix stage IB1. At 36 weeks of gestation, caesarean hysterectomy was performed, and a female healthy baby weighing 3185 gm was born. Uterine atony refractory to medical treatment and uterine arteries ligation was observed just after delivery. Bowel adhesions related to previous myomectomy, prolonged the surgery. The massive bleeding led to the decision to perform simple instead of radical hysterectomy, followed by systematic pelvic lymphadenectomy. Three units of packed red blood cells and three of fresh frozen plasma were transfused. Pathological examination conducted to re-staging to stage IA1. After 8 months of follow-up, the mother and the baby are healthy. These findings suggest that caesarean hysterectomy for cervical cancer complicating pregnancy is a feasible option. Emphasis should be posed to preoperative counseling, enlightening the benefit and risk of the available conservative and demolitive treatment options.

**Keywords:** Cervical cancer; Caesarean hysterectomy; Cancer in pregnancy; Uterine atony; Post-partum hemorrhage

### Abbreviations

FIGO: International Federation of Gynecology and Obstetrics; HPV: *Human papillomavirus*; L SIL: Low-Grade Squamous Intraepithelial Lesion; ASCUS: Atypical Squamous Cells of Undetermined Significance; MRI: Magnetic Resonance Imaging; LVSI: Lymphovascular Space Invasion

### Introduction

The diagnosis of cancer complicates up to 1 in 1000 pregnancies and cervical cancer is the most common pregnancy-associated gynecological cancer with an estimated incidence of 0.8 to 1.5 cases per 10 000 births [1]. The predominant histological type is squamous cell carcinoma, and it is most frequently diagnosed at an early stage, mainly a FIGO stage IB1 [2]. Endo cervical adenocarcinoma accounts for 25% of all primary cervical carcinomas, 85% of which are driven by high risk HPV infection [3]. There are no standardized procedures concerning the treatment of cervical cancer in pregnancy. Treatment options, which include conservative and surgical approaches, follow the management of non-pregnant patients, but they must also consider the gestational age at diagnosis and the patient's wish to continue the pregnancy [4]. Cesarean hysterectomy is a rare surgical procedure for patients with early stages cervical cancer without radiologic evidence of extra-pelvic disease or lymph node metastasis. It is associated with high surgical morbidity, especially regarding intraoperative blood loss due to atonic bleeding of the gravid uterus. In fact, transfusion rates are significantly higher among pregnant women (57%) as compared to non-pregnant patients (9%) [5,6]. Because of this serious complication, some surgeons prefer to delay hysterectomy for 4 to 6 weeks postpartum [7]. However, the association of obstetric surgery and oncologic surgery at the same time prevents the patient a second laparotomy. We report a case of early stage cervical adenocarcinoma complicating pregnancy and describe its surgical management.

### OPEN ACCESS

#### \*Correspondence:

Scarfone Giovanna, Department of Gynecology and Obstetrics, IRCCS Ca 'Granda Foundation, Maggiore Policlinico Hospital, Via della Commenda 12, 20122, Milano, Italy, Tel: +39-0255032188; Fax: +39-0255034200; E-mail: [giovi.scarfone@gmail.com](mailto:giovi.scarfone@gmail.com)

Received Date: 14 Dec 2020

Accepted Date: 06 Jan 2021

Published Date: 15 Jan 2021

#### Citation:

Castellani C, Di Loreto E, Perugino G, Orsi M, Preti EP, Ramezzana IG, et al. Caesarean Hysterectomy for Cervical Cancer Complicating Pregnancy: Life-Saving Procedure or Hazardous Choice?. *J Gynecol Oncol.* 2021; 4(1): 1049

Copyright © 2021 Scarfone G. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

## Case Presentation

A 43-year-old nulliparous woman was referred to our Clinic at 34 weeks of her first pregnancy with a diagnosis of grade 2 adenocarcinoma of the cervix. The patient was referred to colposcopy during pregnancy due to her personal previous history of abnormal Pap smear findings (LSIL and ASCUS) and positive HPV tests (high-risk HPV 16). The colposcopy, performed at 31 weeks of pregnancy, showed diffuse cervical ectropion, bleeding at touch, with an exophytic lesion sized 1 cm, lined with regular cylindrical epithelium, which was biopsied for pathological diagnosis.

An abdominal-pelvic MRI was immediately performed in order to assess the loco-regional diffusion of disease and the lymph node status. The MRI showed an irregular appearance of the cervical canal with a suspicious tissue thickening of 16 mm × 17 mm × 20 mm on the anterior-lateral aspect of the cervix (Figure 1). Neither vaginal or parametrial infiltration nor lymph node involvement were observed. The tumor was consequently classified as a FIGO stage IB1 [8].

The patient received a multidisciplinary consultancy involving the gynecological oncologist, obstetric surgeon with experience in oncologic surgery, and neonatologist. Considering the advanced gestational age, the patient was recommended to undergo immediate cesarean radical hysterectomy with comprehensive surgical staging. She was informed of the slightly increased surgical risk owing to her previous laparotomic myomectomy history. The C-section was performed at 36 weeks of pregnancy and a healthy female baby of 3,185 gm was born with Apgar scores of 8 and 9 at 1 and 5 min, respectively. During the procedure, we detected firm adhesions between bowel loops and the ventral part of the fundus of the uterus, probably caused by the previous myomectomy, and we carefully removed them. Immediately after delivery, atonic bleeding occurred despite sustained uterine massage, uterotonic agents, and tranexamic acid administration. We proceeded to bilateral uterine artery ligation, but hemorrhage persisted making necessary the transfusion of three bags of packed red blood cells; moreover, three bags of plasma were administered. Due to the ongoing bleeding, we decided to perform a total simple hysterectomy instead of a radical hysterectomy type B as previously planned [9]. With the removal of the uterus (Figure 2), an accurate control of bleeding was achieved. We completed the surgery with bilateral salpingo-oophorectomy and bilateral pelvic lymphadenectomy with the removal of thirty-three lymph nodes on the right side and thirty-two lymph nodes on the left side. The estimated overall blood loss was of 3 liters.

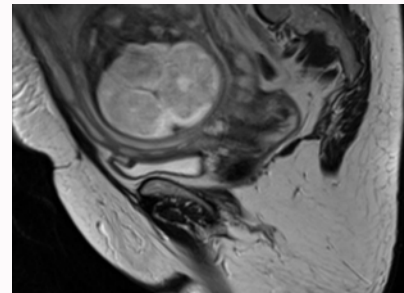
The patient was discharged after 5 days. Her postoperative course and the neonatal outcome were unremarkable.

Final surgical pathology revealed a grade 1 adenocarcinoma of the cervix infiltrating the cervical stroma for 2 mm, without evidence of LVSI and with negative margins. The 65 dissected lymph nodes and the placenta were negative for metastases. Consequently, the tumor was re-staged to a FIGO stage IA1 [8].

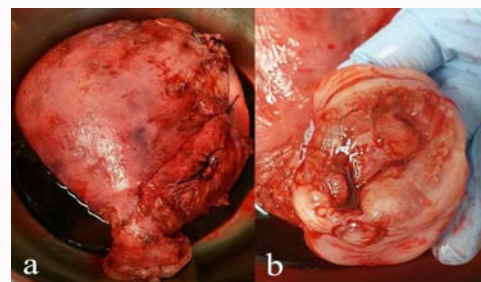
Considering the final histopathological result, only clinical follow-up was recommended. After 8 months of follow-up, the patient has no evidence of disease.

## Discussion

Although cervical carcinoma is one of the most common malignancies diagnosed during pregnancy, its management remains subject of debate owing to the absence of randomized trials providing



**Figure 1:** Magnetic resonance imaging. Sagittal section showing an anterior inhomogeneous thickening area of the cervical canal.



**Figure 2:** Surgical specimens. a) Atonic uterus after caesarean hysterectomy b) with a detail on the exocervix.

guidelines for its treatment [10]. In addition, evidence concerning the surgical management is extremely limited due to an overall low number of cases reported in literature. For example, a national study of surgical outcomes of radical hysterectomy for cervical cancer performed in the United States from 2007 to 2015 showed that, among 22,551 cases of radical hysterectomy, there were only 267 cases of cesarean radical hysterectomy [11]. Therefore, any surgical outcome is difficult to generalize widely, especially with regards to complications.

Previous evidence from case reports, small case series and retrospective analysis show that blood loss due to uterine atony is the main adverse event of cesarean radical hysterectomy [11,12]. This is the reason why this kind of procedure should be performed only at a tertiary care center with all necessary components of perioperative care, particularly blood products, as in our case.

We initially planned to perform a cesarean radical hysterectomy type B according to the Querleu-Morrow classification [9]. The radical hysterectomy type B, which implies the transection of the paracervix at its junction with the ureters, is indicated for stage T1b1 sized up to 2 cm [13].

However, uterine atony resistant to uterotonic drugs and uterine arteries' ligation prevented us from performing a radical hysterectomy. In addition, the severe intestinal adhesions related with the previous myomectomy delayed the removal of the uterus, increasing the blood loss.

We then proceeded with bilateral external iliac and obturator lymph-node dissection (lymph-node dissection level 1), which is one of the most important surgical procedures in the treatment of a cervical carcinoma, since pathologic assessment of the lymph nodal status provides crucial prognostic information [9].

Even though the severe bleeding prevented us to radicalize surgery, we were aware that in tumors up to 2 cm at stage IB1,

parametrial extension is generally inferior to 1% [14]. In hindsight, parametrectomy would have represented even an overtreatment and simple hysterectomy or large conization with negative surgical margins alone could have been an adequate treatment for cervical adenocarcinoma at stage IA1 with absence of LVSI [8]. Even if there is no evidence in literature that the pregnancy-related changes of the uterus and parametria affect the clinical staging of cervical cancer, an increasing number of case reports show that post-operative tumor down-staging is not infrequent [15].

Considering the treatment options and the risks related on the one hand to surgical procedure performed during pregnancy, and on the other hand to repeated surgery, an accurate pre-operative counseling is mandatory. In this case, the patient was also informed in detail about the opportunity of a fertility sparing treatment in relation to the tumor size and histology.

She refused the conservative option and accepted the cesarean hysterectomy and salpingo-oophorectomy. Our case report shows that immediate surgical treatment by cesarean hysterectomy in patients with a diagnosis of early stage cervical cancers during the third trimester of pregnancy is a feasible option. However, as massive hemorrhage not infrequently complicates this procedure, centralization in a tertiary care center is compulsory. Finally, an accurate pre-operative clinical evaluation of tumor in terms of size, depth of invasion and lymph vascular space invasion is mandatory to avoid overtreating aggressive surgery, especially for young women desiring future fertility.

## References

- Beharee N, Shi Z, Wu D, Wang J. Diagnosis and treatment of cervical cancer in pregnant women. *Cancer Med*. 2019;8(12):5425-30.
- Amant F, Halaska MJ, Fumagalli M, Dahl Steffensen K, Lok C, Van Calsteren K, et al. Gynecologic cancers in pregnancy: guidelines of a second international consensus meeting. *Int J Gynecol Cancer*. 2014;24(3):394-403.
- Turashvili G, Park KJ. Cervical glandular neoplasia: Classification and staging. *Surg Pathol Clin*. 2019;12(2):281-313.
- Bentivegna E, Gouy S, Maulard A, Chargari C, Leary A, Morice P. Oncological outcomes after fertility-sparing surgery for cervical cancer: A systematic review. *Lancet Oncol*. 2016;17(6):e240-53.
- Leath CA, Bevis KS, Numnum TM, Ramsey PS, Huh WK, Straughn JM Jr. Comparison of operative risks associated with radical hysterectomy in pregnant and nonpregnant women. *J Reprod Med*. 2013;58(7-8):279-84.
- Matsuo K, Enomoto T, Yamasaki M. Amputation of uterine corpus as the intraoperative modification during cesarean radical hysterectomy for invasive cervical cancer during pregnancy. *Int J Clin Oncol*. 2010;15(1):77-81.
- Hecking T, Abramian A, Domröse C, Engeln T, Thiesler T, Leutner C, et al. Individual management of cervical cancer in pregnancy. *Arch Gynecol Obstet*. 2016;293(5):931-9.
- Bhatla N, Berek JS, Cuello Fredes M, Denny LA, Grenman S, Karunaratne K, et al. Revised FIGO staging for carcinoma of the cervix uteri. *Int J Gynaecol Obstet*. 2019;145(1):129-35.
- Querleu D, Morrow CP. Classification of radical hysterectomy. *Lancet Oncol*. 2008;9(3):297-303.
- Ma J, Yu L, Xu F, Yi H, Wei W, Wu P, et al. Treatment and clinical outcomes of cervical cancer during pregnancy. *Ann Transl Med*. 2019;7(11):241.
- Matsuo K, Mandelbaum RS, Matsuzaki S, Licon E, Roman LD, Klar M, et al. Cesarean radical hysterectomy for cervical cancer in the United States: A national study of surgical outcomes. *Am J Obstet Gynecol*. 2020;222(5):507-11.e2.
- De Vincenzo R, Tortorella L, Ricci C, Cavaliere AF, Zannoni GF, Cefalo MG, et al. Locally advanced cervical cancer complicating pregnancy: A case of competing risks from the Catholic University of the Sacred Heart in Rome. *Gynecol Oncol*. 2018;150(3):398-405.
- Cibula D, Pötter R, Planchamp F, Avall-Lundqvist E, Fischerova D, HaieMeder C, et al. The European society of gynaecological oncology/ European society for radiotherapy and oncology/European society of pathology guidelines for the management of patients with cervical cancer. *Virchows Arch*. 2018;472(6):919-36.
- Perrotta M, Noll F, Cortez JPS, Bolaño L, Saadi JM, Odetto D. Simple trachelectomy with laparoscopic pelvic lymphadenectomy in a pregnant woman with a FIGO stage IA2 cervical cancer. *Int J Gynecol Cancer*. 2020;30(10):1652-3.
- Bigelow CA, Horowitz NS, Goodman A, Growdon WB, Del Carmen M, Kaimal AJ. Management and outcome of cervical cancer diagnosed in pregnancy. *Am J Obstet Gynecol*. 2017;216(3):276.e1-276.e6.