

Case Report

Para-Aortic Lymphadenectomy Associated with Excision of Liver Lesions in Advanced-Stage Cervical Cancer – A Case Report

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REZUMAT

Limfodisecția inter-aortico-cavă asociată cu rezecția leziunilor hepatice în neoplasmul de col uterin avansat – prezentare de caz

Metastazele ganglionare para aortice, împreună cu stadiul tumorii reprezintă cei mai importanți factori de prognostic în neoplasmul de col uterin avansat. Afectarea ganglionilor para-aortici este identificată la până la 30% din pacienți, deși examenele imagistice preoperatorii oferă o rată crescută de rezultate fals negative. Rezecția completă a ganglionilor inter aortico-cavi pare să fie asociată cu o îmbunătățire considerabilă a ratei globale de supraviețuire a pacienților cu neoplasm cervical avansat. Prezentăm cazul unei paciente de 61 ani diagnosticată cu carcinom scumaos bine diferențiat de col uterin care a urmat radioterapie neoadjuvantă și apoi a fost supusă unei histerectomii totale cu anexectomie bilaterală, limfodisecție pelvină și inter aortico-cavă. S-a efectuat și o rezecție hepatică atipică pentru două leziuni hepatice aparent chistice dar la care nu s-au putut exclude cu certitudine determinările secundare tumorale; astfel rezecția hepatică a avut atât intenție de excludere cât și profilactică.

Cuvinte cheie: neoplasm de col uterin avansat, limfodisecția para-aortica, rezecție hepatică

ABSTRACT

Para-aortic lymph node metastases together with tumor stage represent the most important prognostic factors in advanced cervical cancer. Para-aortic involvement of the lymph nodes is identified in up to 30% of these patients, although preoperative imaging exams have a high percent of false negative results. Complete debulking of para-aortic lymph nodes seems to be associated with significant survival benefit in advanced cervical cancer. We present the case of a 61 years old patient diagnosed with well differentiated squamous cell carcinoma who

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underwent neoadjuvant irradiation, in whom we performed a radical hysterectomy en bloc with bilateral adnexectomy, pelvic and para-aortic lymph node dissection. She was also submitted to an atypical liver resection for two cystic lesions with uncertain radiographic features, having both exclusion and prophylactic intent.

Key words: advanced cervical cancer, para-aortic lymph node dissection, liver resection

INTRODUCTION

Cervical cancer represents a major health problem, ranking worldwide as the second most frequent malignancy in women (1,2). Although screening tests for cervical cancer are widely utilized, there is still a large number of patients who are diagnosed in an advanced stage of the disease (3). The main patterns of tumoral spread involve mainly parametria, upper vagina, uterus and pelvic lymph nodes (4,5). The incidence of positive lymph nodes increases proportionally with FIGO stage: pelvic lymph node metastases range between 12% in stage Ib up to 43% in stage IIb (4). Metastases to the aortic lymph nodes are secondary to the pelvic ones, the risk of positive para-aortic lymph nodes rising up to 30 %; on the other hand, skip metastases to aortic nodes represents a very rare condition (6-10). Extended para-aortic lymph node dissection provides an appropriate debulking surgery, allows an adequate histological evaluation and disease staging and offers important information in order to plan the extension of postoperative radiation field (7-15).

CASE REPORT

The 61 years old patient presenting vaginal bleeding was submitted to a cervical biopsy which revealed a well differentiated squamous cell cervical carcinoma. The CT scan showed the presence of a 5/3/4 cm cervical tumor with no demarcation limit from the anterior rectal wall, few pelvic infracentimetric adenopathies and two hepatic lesions of 8 and 19 mm, possible essential liver cysts, but without excluding a metastatic disease (figs. 1, 2). The anterior rectal wall involvement was infirmed by the pelvic IRM. The patient was confined to the oncology service where she underwent 25 sequences of external beam radiotherapy (total dose = 45 Gy) and 2 applications of 750 Gy through brachytherapy. 6 weeks after finishing neoadjuvant treatment we performed a total hysterectomy en bloc with

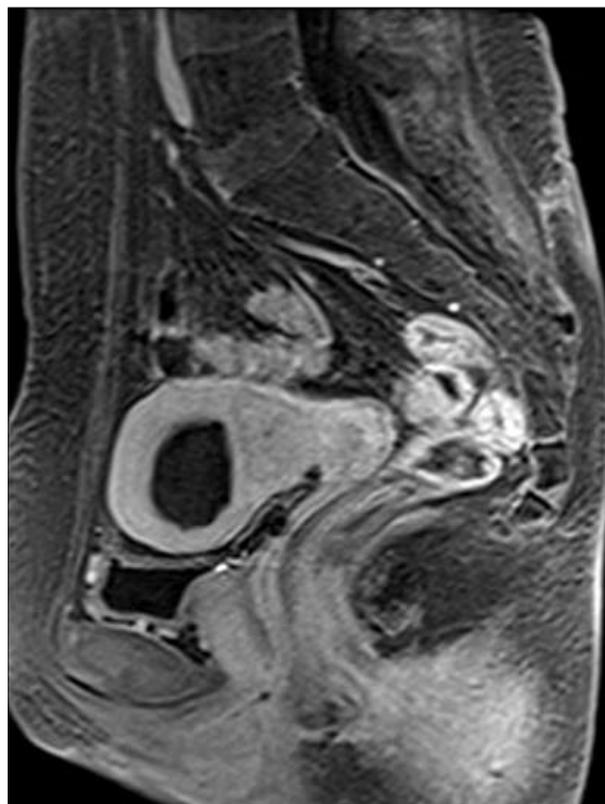


Figure 1. The anterior rectal wall involvement was infirmed by the pelvic IRM



Figure 2. 2 hepatic lesions in IV B segment



Figure 3. Large para-aortic adenopathy

bilateral adnexectomy, pelvic and para-aortic lymph node dissection (figs. 3, 4, 5) and a minor liver resection in order to remove the 2 lesions located in IVB segment according to Couinaud's classification (fig. 6). The postoperative course was uneventful; the histopathological exam confirmed the result of well differentiated squamous cell carcinoma, with pelvic

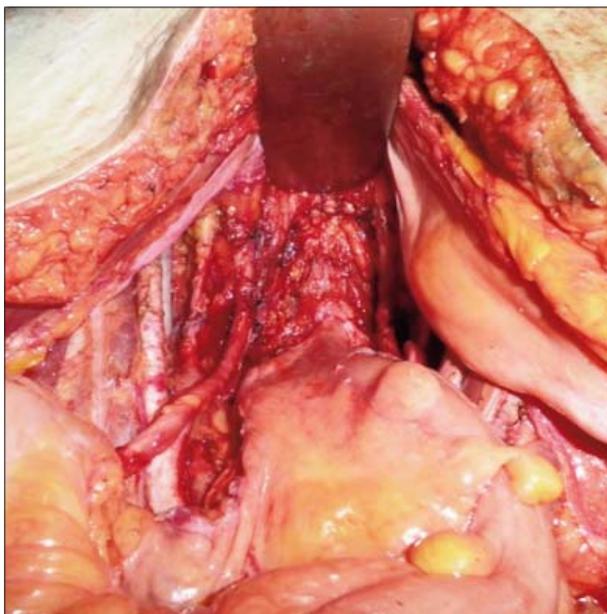


Figure 5. The final aspect after resection and pelvic lymph node dissection



Figure 4. The final aspect of inter aortico-caval lymph node dissection

lymph node involvement; 4 of the 10 para-aortic lymph nodes were positive; the specimen of atypical hepatectomy revealed that the lesions were serous cysts, with no malignant cells. At a 12 month follow up there are no signs of local or distant disease.

DISCUSSIONS

The presence of positive para-aortic lymph nodes represents one of the most important prognostic factors in advanced cervical cancer. Unfortunately, preoperative imaging like CT or MRI proved to be inefficient in finding these lesions, with a reported sensitivity of only 30%, resulting in patients with positive lymph nodes being undertreated (13,16). PET CT represents a more accurate method for

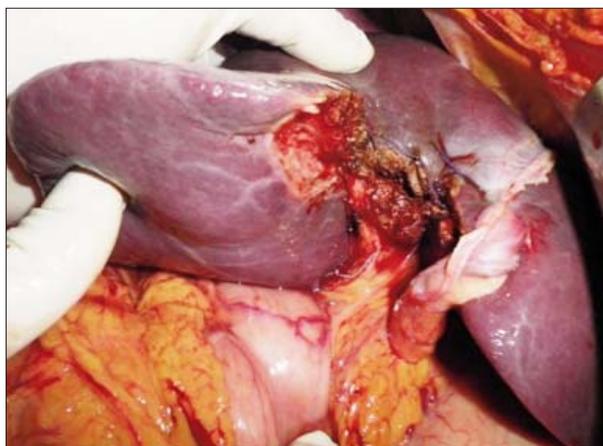


Figure 6. The final aspect after liver resection of hepatic lesions

detecting positive lymph nodes but the sensitivity of the method is about 80%, with up to 13% false negative results (17,18,19). In our case, preoperative imaging exams showed only pelvic lymph node involvement and no para-aortic adenopathy, while the histological exam confirmed the presence of 4 positive para aortic lymph nodes.

In these patients surgical evaluation through an extended lymph node dissection offers an exact evaluation for the extent of the disease, a better individualization of the therapy protocol and, therefore, a more favorable outcome (4,12,13,14,16). Le Blanc et al showed similar rates of overall survival in patients with para-aortic lymph node metastases who underwent extended lymph node dissection and adjuvant radiotherapy applied on enlarged radiation fields (including aortic field) when compared with patients with negative para-aortic lymph nodes (13).

Surgical staging for the involvement of para-aortic lymph nodes was first proposed almost 3 decades ago, by Averette et al in order to identify the exact extent of extra-pelvic disease, but at that moment it was associated with an unacceptable rate of morbidity and mortality (50%, respectively 23 %, according to Vontgama et al and Delgado et al) (20,21,22). In time, due to the improvement of surgical techniques, the morbidity rate has significantly diminished and para-aortic lymph node dissection became widely accepted (23). At present, the only contraindication to remove involved lymph nodes is the evidence of gross extracapsular nodal spread, indicating an important extra-lymphatic disseminated disease and an overall poor prognosis. In these cases, a mechanism through which the tumor can actively induce the formation of new lymphatic vessels and accelerate malignant dissemination is considered, and the patients are more susceptible to chemoradiation (24,25,26).

In cases with enlarged, solitary positive lymph nodes resection offers therapeutic benefit because otherwise it would be difficult to completely sterilize them with standard doses of radiotherapy. According to radio-biological studies, a 2 cm mass needs 60 Gy of external beam radiotherapy to be 90% sterilized and 75 Gy to achieve 100% control, this dose being intolerable for the surrounding organs (14,15,27,29).

In our case the presence of the two lesions with uncertain radiologic characters determined us to proceed to an atypical liver resection involving IVB segment. In most cases this kind of lesions are

simple cysts which are discovered incidentally. In patients with a known malignancy, these lesions undergo evaluation for establishing their character and further, the right extent of the malignant disease; this is even harder in small lesions which might be difficult to be characterized radiographically (30). Cystadenomas represent premalignant lesions which have similar radiologic characteristics with simple serous hepatic cysts. Cystadenomas tend to progress slowly and can suffer malignant transformation in cystadenocarcinomas. Whenever large papillary projections are noticed on imaging studies malignancy should be suspected (31,32,33). Because of their rarity and similarity to simple cyst, inappropriate treatment like aspiration or fenestration can be applied, causing tumoral spread and further, increased morbidity and mortality (34). In our case the uncommon radiological findings of the hepatic lesions associated with the presence of a known malignancy with intraabdominal dissemination (positive para aortic lymph nodes) determined us to perform a liver resection.

CONCLUSIONS

Para-aortic lymph node dissection in advanced cervical cancer represents one of the most important surgical procedures which can improve the overall survival. It presents a double benefit: provides a complete resection of lymph node stations which are usually affected in advanced cervical cancer and offers the delimitation of postoperative radiation field. If other suspect lesions are discovered they should be resected whenever possible with both exclusion and prophylactic intent.

REFERENCES

1. Parkin DM, Pisani P, Ferlay J. Estimates of the worldwide incidence of 25 major cancers in 1990. *Int J Cancer* 1999;80(6):827-41
2. HPV and cervical cancer in the 2007 report. WHO/ICO Information Centre on HPV and Cervical Cancer. *Vaccine* Nov 1 2007;25 Suppl 3:C1-230.
3. Benedetti Panici, P., Basile, S., Angioli, R., Pelvic and aortic lymphadenectomy in cervical cancer: The standardization of surgical procedure and its clinical impact, *Gynecologic Oncology* 113 (2009) 284-290
4. Sakuragi N. Up-to-date management of lymph node metastasis and the role of tailored lymphadenectomy in cervical cancer. *Int J Clin Oncol* 2007;12:165-75.
5. Sakuragi N, Satoh C, Takeda N, Hareyama H, Takeda M, Yamamoto R, et al. Incidence and distribution pattern of pelvic and paraaortic lymph node metastasis in stages IB, IIA and IIB cervical carcinoma treated with radical hysterectomy. *Cancer* 1999;85:1547-54.

6. Heller PB, Malfetano JH, Bundy BN, Barnhill DR, Okagaki T. Clinical-pathologic study of stage IIB, III, and IVA carcinoma of the cervix: Extended diagnostic evaluation for paraaortic node metastasis—a Gynecologic Oncology Group study. *Gynecol Oncol* 1990;38:425–30.
7. Benedetti Panici P, Scambia G, Baiocchi G, Matonti G, Capelli G, Mancuso S. Anatomical study of para-aortic and pelvic lymph nodes in gynaecologic malignancies. *Obstet Gynecol* 1992;79:498–502.
8. Querleu D, Dargent D, Ansquer Y, Leblanc E, Narducci F. Extraperitoneal endosurgical aortic and common iliac dissection in the staging of bulky or advanced cervical carcinomas. *Cancer* 2000 Apr 15;88(8):1883–91.
9. Benedetti-Panici P, Maneschi F, Scambia G, Greggi S, Cutillo G, D'Andrea G, et al. Lymphatic spread of cervical cancer: an anatomical and pathological study based on 225 radical hysterectomies with systematic pelvic and aortic lymphadenectomy. *Gynecol Oncol* 1996;62(1):19–24.
10. Michel G, Morice P, Castaigne D, Leblanc M, Rey A, Duvillard P. Lymphatic spread in stage Ib and II cervical carcinoma: anatomy and surgical implications. *Obstet Gynecol* 1998;9:360–3.
11. Podczaski ES, Palombo C, Manetta A, Andrews C, Larson J, DeGeest K, et al. Assessment of pretreatment laparotomy in patients with cervical carcinoma prior to radiotherapy. *Gynecol Oncol* 1989;33(1):71–5.
12. Marnitz S, Kϕhler C, Roth C, Fϕller J, Hinkelbein W, Schneider A. Is there a benefit of pretreatment laparoscopic transperitoneal surgical staging in patients with advanced cervical cancer? *Gynecol Oncol* 2005;99:536–44.
13. Leblanc E, Narducci F, Frumovitz M, Lesoin A, Castelain B, Baranzelli MC, et al. Therapeutic value of pretherapeutic extraperitoneal laparoscopic staging of locally advanced cervical carcinoma. *Gynecol Oncol* 2007;105:304–11.
14. Cosin JA, Fowler JM, Chen MD, Paley PJ, Carson LF, Twigg LB. Pretreatment surgical staging of patients with cervical carcinoma: the case for lymph node debulking. *Cancer* 1998;82:2241–8.
15. Moore DH, Stehman FB. What is the appropriate management of early stage cervical cancer (International Federation of Gynecology and Obstetrics stages I and IIA), surgical assessment of lymph nodes, and role of therapeutic resection of lymph nodes involved with cancer? *J Natl Cancer Inst Monogr* 1996;21:43–6.
16. Antonio Gil-Moreno, A., Dvaz-Feijoo, B., Pirez-Benavente, A., del Campo, J., Xercavins, J., Martvnez-Palones, J., Impact of extraperitoneal lymphadenectomy on treatment and survival in patients with locally advanced cervical cancer, *Gynecologic Oncology* 110 (2008) S33–S35
17. Havrilesky LJ, Kulasingam SL, Matchar DB, Myers ER. FDG-PET for management of cervical and ovarian cancer. *Gynecol Oncol* 2005;97: 183–91.
18. Boughanim M, Leboulleux S, Rey A, Pham CT, Zafrani Y, Duvillard P, et al. Histologic results of para-aortic lymphadenectomy in patients treated for stage IB2/II cervical cancer with negative [18F]fluorodeoxyglucose positron emission tomography scans in the para-aortic area. *J Clin Oncol* 2008; 26:2558–61.
19. Uzan, C., Gouy, S., Pautier, P. Haie-Meder, C., Duvillard, P., Narducci, F, Leblanc, E. Morice, P., Lymphadénectomie lomboaortique dans les cancers du col de stade avancé : un standard en 2010 ?, *Gyne´cologie Obste´trique & Fertilité´* 38 (2010) 668–671
20. Averette HE, Donato DM, Lovecchio JL, Sevin BU. Surgical staging of gynecologic malignancies. *Cancer* 1987;6:2010–20.
21. Vongtama V, Piver SM, Tsukada Y, Barlow JJ, Webster JH. Para-aortic node irradiation in carcinomas. *Cancer* 1974;34:169–74.
22. Delgado G, Caglar H, Walker P. Survival and complications in cervical cancer treated by pelvic and extended field radiation after paraaortic lymphadenectomy. *AJR Am J Roentgenol* 1978;13:141–3.
23. Gallup DG, King LA, Messing MJ, Talledo OE. Paraaortic lymph node sampling by means of an extraperitoneal approach with a supraumbilical transverse “sunrise” incision. *Am J Obstet Gynecol* 1993;169:307–11.
24. Horn LC, Hentschel B, Galle D, Bilek K. Extracapsular extension of pelvic lymph node metastases is of prognostic value in carcinoma of the cervix uteri. *Gynecol Oncol* 2008 Jan;108(1):63–7.
25. Skobe M, Hawighorst T, Jackson DG, Prevo R, Janes L, Velasco P, et al. Induction of tumor lymphangiogenesis by VEGF-C promotes breast cancer metastasis. *Nat Med* 2001 Feb;7(2):192–8.
26. Tobler NE, Detmar M. Tumor and lymph node lymphangiogenesis—impact on cancer metastasis. *J Leukoc Biol* 2006 Oct;80(4):691–6.
27. Perez CA, Hall EJ, Purdy JA, Williamson J. Biologic an physical aspects of radiation oncology. In Hoskins WJ, Perez CA, Young RC, editors. *Gynecologic Oncology*, 2nd edn. Philadelphia, PA: Lippincott-Raven; 1997. pp. 305–80. onc
28. Denschlag, D., Gabriel, B., Mueller-Lantzsch, C., Tempfer, C., Henne, K., Gitsch, G., Hasenburg, A., Evaluation of patients after extraperitoneal lymph node dissection for cervical cancer, *Gynecologic Oncology* 96 (2005) 658–664
29. Downey GO, Potish RA, Adcock LL, Prem KA, Twigg LB. Pretreatment surgical staging in cervical carcinoma: therapeutic efficacy of pelvic lymph node resection. *Am J Obstet Gynecol* 1989;160(5 Pt 1):t-61.
30. Chamberlain, R., Decorato, D., Jarnagin, W., Benign Liver Lesions, HEPATOBILIARY CANCER
31. Stanley J, Vujic I, Gobein RP, Reines HD. Evaluation of biliary cystadenoma and cystadenocarcinoma. *Gastrointest Radiol* 1983;8:245–8.
32. Korobkin M, Stephens DH, Lee JKT, et al. Biliary cystadenoma and cystadenocarcinoma: CT and sonographic findings. *AJR Am J Roentgenol* 1989;153: 507–11.
33. Lewis WD, Jenkins RL, Rossi RL, et al. Surgical treatment of biliary cystadenoma. A report of 15 cases. *Arch Surg* 1988; 123:563–8.
34. Yongliang Sun, Xin Lu, Yiyao Xu, Yilei Mao, Zhiying Yang, Xinting Sang, Shouxian Zhong, Jiefu Huang, Spontaneous rupture of a giant hepatobiliary serous cystadenoma: report of a case and literature review, *Hepatol Int* (2011) 5:603–606