Localized cervical cancer (stage <IIB): accuracy of MR imaging in planning less extensive surgery

Carcinoma della cervice uterina localizzato (stadio <IIB): accuratezza della RM nella pianificazione di una chirurgia meno estesa

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Received: 25 September 2008 / Accepted: 23 October 2008 / Published online: 14 May 2009
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Abstract

Purpose. This study was undertaken to determine the accuracy of magnetic resonance (MR) imaging in the preoperative staging of patients with clinically localised cervical cancer eligible for less extensive surgery.

Materials and methods. Fifty-three patients with biopsy-proven carcinoma of the uterine cervix and eligible for conservative surgery prospectively underwent MR imaging. Images were assessed for tumour site and size, infiltration of the cervical stroma, infiltration of vaginal fornices and relationship between the tumour and the internal os of the endocervical canal and the presence and dimensions of pelvic and lumboaortic lymph nodes (cutoff values 1 cm and 0.5 cm minimum axial diameter). MR imaging data were compared with the histopathological findings.

Results. The endocervix was the site of origin of 25% (13/53) of the cervical tumours and the exocervix the site of origin of 75% (40/53). In the assessment of cervical stroma infiltration, there was agreement between MR imaging and histopathology in 75% of cases. MR imaging had 67% sensitivity, 92% specificity and 91% diagnostic accuracy in assessing infiltration of the vaginal fornices. In the evaluation of the infiltration of the internal os, MR imaging had 86% sensitivity, 93% specificity and 92% accuracy. In the assessment of the lymph nodes, when using a cutoff value of 1 cm, MR imaging had a sensitivity, specificity and diagnostic accuracy of 28%, 100% and 89%, respectively. With a cutoff value of 0.5 cm, MR imaging had a sensitivity, specificity and diagnostic accuracy of 28%, 100% and 89%, respectively.

Conclusions. The RM has demonstrated an elevated accuracy in the valuation pre-operatoria dell’estensione (T)
Imaging had a sensitivity, specificity and diagnostic accuracy of 33%, 92% and 83%, respectively.

**Conclusions.** MR imaging had a high level of accuracy in the preoperative assessment of the extent of cervical tumour in patients eligible for conservative surgery. Accuracy is lower in the evaluation of the pelvic and lumboaortic lymph nodes.

**Keywords** Uterine neoplasms · Cervical cancer · Magnetic resonance imaging · Staging

**Introduction**

Localized uterine cervical carcinoma [stage ≤IIA, with tumour diameter <4 cm, according to the classification of the International Federation of Gynaecologists and Obstetricians (FIGO)] may be treated with surgery or exclusive radiation therapy, with similar 5-year survival rates [1, 2]. Nonetheless, in many centres, surgery remains the treatment of choice [3]. In patients with localized cervical carcinoma, radical surgery consisting of hysterectomy with parametrectomy extended to the pelvic wall, and pelvic and lumboaortic lymphadenectomy may represent overtreatment that exposes the patient to an increased risk of postoperative complications and morbidity [4–7]. With the exception of cases of bulky disease, patients with localized cervical carcinoma are potential candidates for less extensive surgery [8–11]. Attempts to modulate the extent of surgical treatment while preserving the degree of oncological disease control may be justified both by the reduction of peri- and postoperative complications and by the lesser impact on the patient’s quality of life and sexual functioning.

In this context, accurate preoperative clinical and imaging staging of local tumour extension and pelvic and lumboaortic lymph node involvement represent a primary medical need for the planning of surgical treatment. Staging of cervical carcinoma is based on clinical criteria established by FIGO. However, compared with surgical staging, clinical staging is associated with a rate of error between 20% and 39% depending on disease stage [12]. The main difficulty in the clinical assessment of cervical cancer lies in determining tumour extent and parametria and pelvic wall involvement. Although nodal involvement is not included in the FIGO staging system, it is fundamental for planning treatment and determining prognosis.

Magnetic resonance (MR) imaging has shown to be a valuable noninvasive diagnostic modality for evaluating parametrial invasion, which is key in distinguishing localised from advanced disease, leading to different treatment strategies [13–15]. To be able to plan a less aggressive surgical procedure, gynaecological oncologists need to be aware of the extent of disease. MR imaging aids in the assessment of tumour size and parametrial involvement, which are key in distinguishing localised from advanced disease, leading to different treatment strategies [13–15].

**Parole chiave** Neoplasie dell’utero · Carcinoma della cervice · Risonanza magnetica · Stadiazione

**Introduzione**

Il carcinoma della cervice uterina localizzato all’utero (stadio ≤IIA, con diametro tumorale<4 cm, secondo la classificazione della Federazione Internazionale di Ginecologia e Ostetricia – FIGO), può essere trattato mediante chirurgia o radioterapia esclusiva, con risultati a distanza simili in termini di sopravvivenza [1, 2]; tuttavia, la chirurgia è il trattamento di scelta in molti centri [3]. In pazienti con carcinoma della cervice localizzato all’utero, un trattamento chirurgico radicale, che consiste in isterec-tomia con parametrectomia estesa alla parete pelvica e linfoadenectomia pelvica e lombo-aortica, può risultare in un sovra-trattamento, esponendo la paziente ad un aumentato rischio di complicanze post-operatorie e di morbilità [4–7]. Ad eccezione delle neoplasie di grosse dimensioni (bulky disease), le pazienti con carcinoma cervicale localizzato all’utero sono infatti potenziali candidate ad una chirurgia meno aggressiva [8–11]. Un tentativo di modulare l’estensione del trattamento chirurgico, preservandone comunque la radicalità oncologica, potrebbe essere giustificato sia dalla riduzione delle complicanze peri- e postoperatorie, che dal miglior impatto sulla qualità della vita delle pazienti e sulla loro vita sessuale.

In questa ottica, un’accurata stadiazione pre-operatoria clinica e strumentale della diffusione locale del tumore e del coinvolgimento dei linfonodi pelvici e lombo-aortici, rappresenta una necessità medica di primaria importanza nella pianificazione del trattamento chirurgico. La stadia-zione del carcinoma della cervice si basa su criteri clinici, codificati dalla FIGO; la stadiazione clinica, tuttavia, comparata con quella chirurgica, ha mostrato un range di errore che va dal 20% al 39%, a seconda dello stadio della malattia [12]. Le maggiori difficoltà nella valutazione clinica del carcinoma della cervice uterina sono rappresentate dalla determinazione dell’estensione tumorale e dell’invasione dei parametri e della parete pelvica. Il coinvolgimento linfonodale non è incluso nella stadiazione FIGO, ma è fondamentale nella pianificazione terapeutica e nella determinazione della prognosi.