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The role of embolization in unresectable, haemorrhagic, gynaecological tumors

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ABSTRACT

Once the techniques of interventional radiology improved, various methods have been proposed in order to achieve a good control of bleeding with different origins. When it comes to the role of arterial embolization for uncontrollable gynaecological bleeding, the method proved to be particularly efficient when it comes to uterine fibroids. Meanwhile, it has been also proposed as salvage therapy in cases presenting massive vaginal bleeding due to unresectable gynaecological malignancies. The aim of the current paper is to review the efficiency of the method in patients presenting large tumoral masses with uterine origin.

Keywords: embolization, uterine cancer, unresectable, uncontrollable haemorrhage

INTRODUCTION

Vaginal bleeding is one of the most commonly encountered complaint which is encountered in gynecological patients at any age; however, depending of the age at which this complaint is encountered, several diagnostics could be taken in consideration (1-4). Therefore, while in premenopausal women the most comonly encountered cause for vaginal bleeding is represented by uterine fibroids, in postmenopausal women the most frequently cause for these bleedings is represented by uterine corpus tumors (2,3). Depending of the cause and severity of bleeding, the therapeutic strategy might range from oral administration of different hormonal agents to local hemostatic treatment, uterine artery embolization or even uterine artery or hypogastric artery ligation (5,6).

ANATOMY OF THE UTERINE ARTERY

The uterine artery originates from the internal iliac artery being the first or second branch of the inferior gluteal artery; in certain cases it might have a common origin with the vaginal or bladder artery (7). The uterine artery further represents the origin for the cervico-vaginal artery and the source for different small branches which will further be anastomosed with those originating from the contro-later-

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al uterine artery as well as with the ovarian artery therefore creating a complex system for the uterine blood supply. In cases in which tumoral lesions develop at the level of the uterine wall or at the level of the uterine cavity the vascularization at this level will increase due to the apparition of neoformation vessels (8). Depending on the nature and dimensions of these uterine tumors different therapeutic strategies have been proposed (9).

THERAPEUTIC STRATEGIES IN CASES PRESENTING UNCONTROLLABLE VAGINAL BLEEDING

In cases presenting massive vaginal bleeding due to fibroids uterine artery embolization has been proposed with promising results. The method provides a local diminishing of the blood supply, conducting therefore to the apparition of local necrosis, decreasing in this manner the rates of vaginal bleeding. When it comes to the most commonly and fearful complications which could develop secondarily to this manoeuvre, there are represented by septic necrosis which can seriously affect the patient's well being. More commonly encountered complications are represented by diffuse pelvic pain and inflammatory syndromes (5-8).

The efficacy of the method in cases presenting uterine fibroids enabled the gynaecologists and interventional radiologists to go further and propose the method in order to treat massive vaginal bleeding caused by unresectable gynaecological malignancies (9,10).

In such cases other therapeutic strategies might consist of brachytherapy or external pelvic irradiation or surgery. When it comes to the possible surgical procedures, in cases in which the tumor can not be resected uterine artery ligation or even hypogastric artery ligation has been proposed with promising results, the success rates ranging from 40% to 100%. However, in cases presenting locally advanced gynaecological malignancies in certain patients this procedure can't be completed due to the local extent of the disease or due to the presence of severe anatomical modifications induced by radiotherapy or tumoral growth (2-6); therefore, the hypogastric artery cannot be reached and ligated. Meanwhile, we should not omit the fact that these patients usually have a poor clinical and biological status and a surgical procedure might not be feasible.

Therefore, in such cases less invasive procedures have been proposed. In this respect, uterine artery or even hypogastric artery embolization has been performed with promising results (5-8).

THE ROLE OF ARTERIAL EMBOLIZATION FOR LOCALLY ADVANCED GYNAECOLOGICAL MALIGNANCIES

Arterial embolization of the uterine or even hypogastric artery in patients with locally advanced gynaecological malignancies seems to be associated with a rapid achievement of the bleeding control, a lower rate of recurrent bleeding due to the fact that the obstruction is created at the level of the distal branches and a rapid improvement of the general status of the patient. Meanwhile, the necrosis process induced by the diminished blood flow at this level will might lead to the decline of the tumoral dimensions increasing therefore the chances to achieve radical resection by the means of lower bleeding rates (7).

An interesting study which came to demonstrate the efficacy of uterine artery embolization when compared to uterine artery ligation in patients with advanced cervical cancer was conducted by Yalvac et al. and was published in 2002 (1). The authors came to demonstrate the efficacy of the minimally invasive technique in terms of bleeding control in eight patients diagnosed with advanced stage cervical cancer the most commonly encountered adverse reaction being related to the severe post-procedural pain which was caused by the severe ischemia of the tumoral tissue; however, two out of the eight patients further developed vesico-vaginal fistula, but the development of this complication could not be related solely to embolization, local invasion of the cervical tumor being also a risk factor for fistula development (1).

Besides uterine and cervical cancer, uterine artery embolization has been also proposed in treating other malignant lesions such as choriocarcinoma, vulvar cancer, vaginal cancer or gestational trophoblastic disease (8-11).

CONCLUSIONS

Uterine artery embolization seems to be an efficient method in order to treat massive vaginal bleeding originating from different types of gynaecological tumors with different origins. The method is effective even in cases in which surgery is no longer possible due to the local extent of the disease. As expected, it can be associated with adverse events related to tumor necrosis such as inflammatory syndrome and pain; in certain cases more severe reactions such as septic necrosis or vesicovaginal fistula can be encountered. However it is not clearly understood in which proportion fistula formation is related to subsequent necrosis versus tumoral development.

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