Ultrasound Guided Radiofrequency Ablation Of Uterine Myoma

Essay

Submitted for partial fulfillment of Master Degree in Radiodiagnosis

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List of Abbreviations

Abbreviation	Name
CT	Computed tomography
2D	Two dimension
3D	Three dimension
HSG	Hysterosalpingography
HIFU	High Intensity Focused Ultrasound.
MRg HIHU	Magnetic resonance guided high intensity focused ultrasound
IV	Intravenous
KHz	Kilo Hertz
mA	Milliamper
MPR	Multiplanar Reconstruction
MRg FUS	Magnetic Resonant Guided Focused Ultrasound Surgery.
MRI	Magnetic Resonance imaging.
NO	Number
NSAIDS	Non steroidal anti-inflammatory drugs
KHZ	Kilohertz
Mm	Millimeter
QOL	Quality of life
UFS QOL	Uterine fibroid symptoms and quality of life
RFA	Radiofrequency Ablation
RITA	Radiofrequency interstitial thermal ablation
UAE	Uterine Artery Embolization.

UFE	Uterine Fibroid Embolization
UFS	Uterine fibroid symptom.
US	Ultrasound
W	Watt
RF	Radiofrequency
DWI	Diffusion weighted image
T1 WI	T1 weight image
T2 WI	T2 weight image

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INTRODUCTION & AIM OF THE WORK

Introduction

Uterine fibroids are the most common pelvic tumors in women of reproductive age ***(Chavez et al., 2001)***.Over the past decade an increasing demand for uterine-sparing treatment to manage symptomatic uterine myoma has become apparent in woman's health care ***(Ghezz et al., 2007)***.

The reason for requesting conservative procedures include the desire to maintain childbearing potential, the wish to avoid major surgery, and, for some, the belief that the uterus plays a role in perceived sexual satisfaction or is the essence of their womanhood ***(Nevadunsky et al., 2007).***

A variety of minimally invasive approaches aimed at preserving the uterus in the face of symptomatic fibroids have been introduced in the clinical arena ***(Ghezz et al., 2007)***.Myolysis, an alternative to the conservative surgical treatment of uterine fibroid, was introduced in the late 1980s in Europe **(*Donnez et al., 2000)***.

A variety of energy sources have been used in myolysis, including the neodymium: yttrium aluminum garnet (Nd: YAG) laser, bipolar electrode, diathermy, cryoprobe, etc. These conventional myolysis methods are performed under general anesthesia by laparoscopy ***(Nisolle et al., 2001).***

Radiofrequency myolysis has been performed since 2004. ***(CHO , 2008)*** suggested that radiofrequency ablation may represent a safe, well-tolerated, and effective day-care alternative to conventional surgery for the treatment of uterine myomas (***CHO et al., 2008).***

Luo and his colleagues explored the mechanism by which radiofrequency ablation treats uterine leiomyoma by observing the features of lesion caused by RFA to leiomyoma tissue. They concluded that radiofrequency ablation might treat uterine leiomyomas by inducing coagulative necrosis and depressing Estrogen and Progesterone receptors expression ***(Luo et al., 2007).***

Radiofrequency thermal ablation of fibroid uterus can be performed under laparoscopic guidance or ultrasound guidance. Ultrasound guided procedure is advantageous over laproscopic RFA, as it can be performed through a small single skin access under moderate sedation ***(Ghezz et al., 2007).***

Aim of work

To assess the feasibility and efficacy of Ultrasound guided radiofrequency ablation for symptomatic uterine myoma and to evaluate its outcomes in terms of durability of symptom control and level of health-related quality of life .

ANATOMY OF THE UTERUS

ANATOMY OF THE UTERUS

It is a pear-shaped muscular organ lying between the bladder and rectum. It has a fundus, a body and a cervix.

It lies on the posterosuperior surface of the bladder with its cervix projecting into the anterior wall of the upper vagina. The cavity of the uterus is triangular in coronal section, but its anterior and posterior walls are opposed, giving it a slit-like appearance in the sagittal plane. The uterine tubes open into the cornua of the uterus superolaterally. The uterus leads to the vagina via the cervical canal. Just above the cervical canal the uterine cavity narrows to an isthmus. The internal os is at the upper end of the cervical canal and the external os at its lower end ***(Cunningham et al., 2010).***

In women of reproductive age the entire uterus measures 6-9 cm in length with the uterine corpus measuring 4- 6 cm; the cervix 2.5 – 3.2 cm. The uterus measures approximately 4 cm in thickness and 6 cm in its maximal transverse dimension ***(Ellis , 2006).***

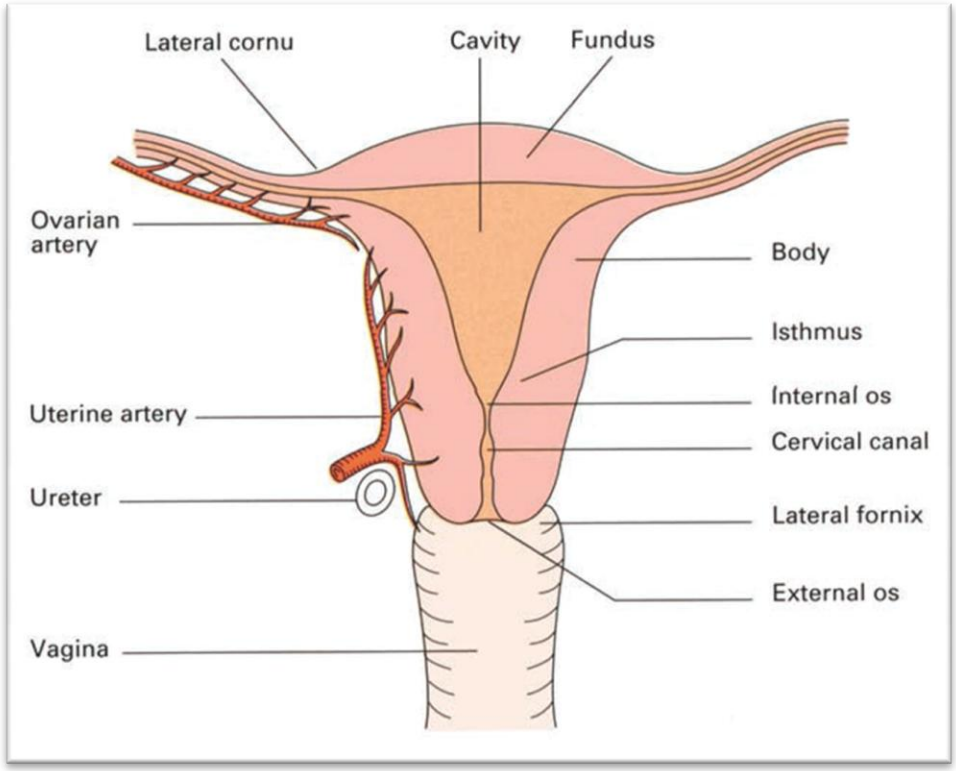

Fig. 2.1: Coronal section of the uterus and vagina
(Eliss, 2006)

In children the cervix is twice the size of the uterus. The uterus grows disproportionately until they are of equal size at puberty. In adulthood the uterus is twice the size of the cervix ***(Cunningham et al., 2010).***

The adult uterus is bent forward on itself at about the level of the internal os to form an angle of 170°; this is termed **anteflexion** of **the uterus**. Moreover, the axis of the cervix forms an angle of 90° with the axis of the vagina which correspond to