

A Case Report and Review of the Literature on Uterine Fatty Tumours (UFT): A Field of Heterogeneous Data

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Abstract

A case of uterine fatty tumour of 2 cm studied by transvaginal ultrasound in a 67-year-old woman undergone totally laparoscopic hysterectomy is here presented along with an updated review of this kind of tumours. A total of 226 cases from 75 publications could be found. Traditional definitions of these tumours are here critically reconsidered. The terminology used to define these tumours is confusing and reflects main radiological and pathological points of view (uterine fatty tumours [UFT] vs. lipoma/lipoleiomyoma). It is here stressed that these tumours by occurring in aged and overweight women are not so uncommon as generally believed, can be very well recognized, as far as they are small (< 4 cm), by transvaginal ultrasound while CT and MR become more specific for decision making in case of larger size tumours. Symptoms largely vary from none to sudden lump enlargement or bleeding or pain. An association with malignancy has been found in 10% suggesting a radical treatment (hysterectomy) in most cases.

Case Report

Since first description by Lobstein in 1816 until 1966 only 131 cases of lipomatous uterine tumours (UFT) were initially reported. From the 70's up to date this number has been progressively growing to at least 357 cases around the world. The first preoperative study on a case of uterine "fatty" tumour has been described by Jacobs and Markowitz in 1988 [1] and since then the preoperative imaging study of these tumours has significantly increased due to the expansion of the radiological technologies and diffusion of ultrasonography in routine gynaecologic activity. Uterine fatty tumours (UFT) or lipoleiomyomas (LLM) are a kind of leiomyomas with prevalent fatty component occurring mostly in peri-menopausal and post-menopausal obese women. Many clinical and pathological aspects of these uncommon uterine nodules have been already reported [2-6]. Nonetheless literature largely varies with a prevalence of radiological case-reports for clinical data and histo-pathological review analysis on pathogenesis investigation. Little or nothing about UFT is found in important gynaecological journals. Moreover it is not clear which diagnostic tool among ultrasound, CT and MR should be best utilized for clinical follow up of these nodules [7,8], whether hysterectomy should or not always warranted [9,10] and how frequently a malignant transformation of these tumours should also be expected [3,11]. We report here a single case of UFT along with a full literature review on this topic with the aim to help gynaecologists in the clinical counselling of these tumours.

A 67 year old woman with no clinical symptoms or relevant medical history (menopause at 54 y.o., hypercholesterolemia and overweight [BMI=28.9]) was found with a 1.9 cm hyper echoic uterine nodule on the intramural/subserosal margin of anterior wall. This little hyper echoic nodule was clearly distinguished from the surrounding myometrium without showing any posterior acoustic shadow. Contrary to that generally reported this lesion appeared not to be encased in hypo echoic ring (Figure 1). The discovery of this nodule was made occasionally during routine transvaginal ultrasound (US). Following CT and MR (images here not reproduced) a presumptive diagnosis of uterine fatty tumour was made and patient advised to undergo surgery. A totally laparoscopic hysterectomy with bilateral adnexectomy was performed and successively the resulted histopathological analysis confirmed the benign nature of the lesion. Pathological findings: grossly, uterus weight of 76 grams and

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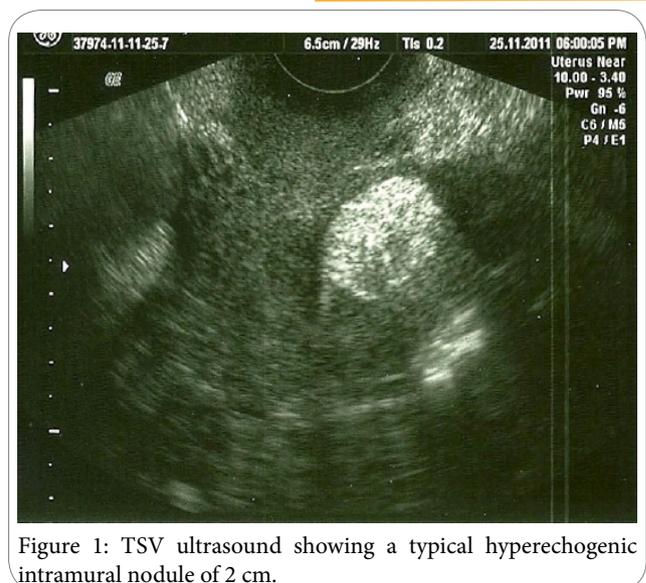


Figure 1: TSV ultrasound showing a typical hyperechoic intramural nodule of 2 cm.

dimensions of 7 × 4 × 3 cm, at the cut surface with a yellowish intramural nodule of corpus uteri of 1.9 cm in diameter, with well-defined edges but non encapsulated; the overlying endometrium was atrophic and the cervix showed no significant macroscopic changes (Figure 2). Microscopically the tumour was predominantly made up of mature adipose tissue mingled with bundles of smooth muscle (positive for smooth muscle actin antibody at immunohistochemistry). The diagnosis of lipoleiomyoma was made. The patient gave her informed consent to the study.

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Figure 2: Macroscopic pathology of fatty tumour.

Overall a total of 226 fatty tumours of the uterus including lipomas, lipoleiomyomas, liposarcomas and endometrial cancers associated with lipoleiomyomas could be retrieved from the literature. We started reviewing data from the study of Willen et al 1978 [2] (the first 131 cases of UFT from 1816 to 1966 were excluded). This has corresponded to 75 independent studies here separately reported in 3 different tables: Table 1 for all clinical studies (n=46), Table 2 for pathological review data analysis (n=16) and Table 3 for malignant uterine tumours with fatty component and endometrial cancers coincidental with benign fatty tumours (n=13). Mean patient age, tumour size and incidence of UFT (which varied accordingly to the criteria used being low -0.03% - in hysterectomy and higher -0.8-2.1% - in uterine leiomyomas studies) along with symptoms and methodology used for preoperative tumour study and detection are summarized in table 4. No association whatsoever between aging and tumour size has been noted (Table 1). Despite being a tumour associated with aging we observed a prevalence of 23% in women younger than 54 years. As for all the other uterine fibroids, clinical signs largely varied including occasional discovery in asymptomatic patients, bleeding, abdominal or pelvic pain, pelvic mass discovery, liver problems, anaemia, disuria, and constipation. Despite UFT are said to recur more frequently in overweight and obese perimenopausal women, specific details on body weight or BMI have in general not been reported. Diagnosis and radiological follow up has been obtained in different ways including a variable utilization of multiple technologies such as US, CT, MR. All 3 of these have been employed only in 16/46 independent case reports. US either by transvaginal (TSV-US) or abdominal (TA-US) route was used in 42/46 studies but TVS has been applied only in 19 occasions. The use of TVS alone as unique diagnostic technique has been used only in 4 studies (for a total of 10 patients) while MR alone, as unique diagnostic tool, in 2 studies (for a total of 10 patients). Hysterectomy has been generally the rule for most patients but 9 (7 study reports). By a pathologist point of view, most of the uterine fatty tumours were lipoleiomyomas (n=135), less frequently occurred lipomas (n=18), angiomyolipomas (n=4), and others (1 atypical lipoleiomyoma, 1 bizarre epithelioid lipoleiomyoma and 1 plexiform lipoleiomyoma, 1 giant lipoleiomyoma, 1 myolipoma of round ligament). An intramural or subserosal location has been found in most cases despite the possibility to encounter everywhere around the uterus these tumours (round ligament, cervix, or as pelvic mass). Satellite fibroid tumours

or leiomyomas were described in 33% of the cases. Notably, in 4/18 lipomas a concomitant presence of an endometrial cancer was discovered. To the date, liposarcomas and lipoleiomyosarcomas have been found to be described in at least 8 independent studies for a total of 19 patients.

Discussion

In the last months the number of publications on UFT has grown a lot with increasing online diffusion of radiological images [12-14]. In these imaging reports, lipoleiomyomas are defined as uncommon, benign tumours not requiring surgical treatment. Most data on these tumors have been published on radiology medicine journals or reviews of pathology archives. Little is given on gynaecological journals. This is of matter since for gynaecologists it would be of value a prompt recognition and counselling of these tumours when performing ultrasound. This is truer in case of overweight peri-menopausal women who have fibroids in almost 80% of the cases [15]. Since the incidence of UFT in older patients is higher than 1% it is questionable to consider UFT as uncommon tumours as yet. Particularly, when the aging trend of the world population is considered. As far as it refers to clinical management a dramatic variability is from one study to another. This is a consequence of the variability of the tumour size, presence or not of symptoms and interpretation of imaging investigation results. As originally reported by Pham et al [16] and others [17,18] when these fatty tumours are small (2-5 cm) and of certain uterine origin, transvaginal ultrasound is very sensitive and there is no need of additional and more specific technologies (CT and MR). Since correct diagnosis can only be expressed after histologic examination and malignancy be found, we believe that in general hysterectomy should be always done. Myomectomy could be an option only for younger patients scheduled to special infertility cures (i.e. oocyte donation cycles). The review of literature data shows that the percentage of UFT occurring in women < 54 years is not insignificant (23%) (3). A conservative management is mandatory in conditions contraindicating surgery when surveillance by means of ultrasonography, CT, and MR is rather coupled to uterine artery embolization [19,15]. When clinical manifestations such as sudden lump enlargement or pelvic masses are present, the implementation with CT and MR becomes mandatory. Despite the very high specificity of MR for detecting origin and mass constitution (fat tissue), the diagnosis is made only after excluding other pelvic masses (benign cystic ovarian teratoma, malignant degeneration of cystic teratoma, lipomatous ovarian tumour, pelvic lipoma, liposarcoma and lipoblastic lymphadenopathy) [9,10,20,21]. CT and MR have allowed valid follow up of pelvic masses in one patient with severe medical contraindication to surgery [7] but pitfalls in imaging interpretation may always happen and one case with fatal consequences due to unnecessary surgery (lipoleiomyoma misdiagnosed as liposarcoma - patient died post hysterectomy) has been reported [22]. Although most fibroids regress after the menopause the UFT are more frequent in elderly women. It has been estimated that the prevalence of uterine lipoleiomyoma in patients older than 80 years is close to 10% (5/50 uterine lipoleiomyomas) [3] and it is well known that elderly women have a higher risk of perioperative morbidity and mortality. Therefore sometime correct counselling of these lesions is not easy in particular considering the finding of an association with sarcomas and endometrial cancers in 10% of the cases. Literature description of the lipomatous uterine tumours is highly variable as much as it is the biology of these tumours, the histotype and also the criteria used

No. of cases	Size	Age	Symptoms	US (TA + TSV)	CT	MR	Surg.	Histology	Fibroids	References
2	7 cm		Abdominal pain lump growth	TA	yes	yes	yes	Lipoma	no	Bachor, Baczako. Geburtshife Frauenheilkd 46;842-3, 1986
1	2 cm 5 cm		Asymptomatic	TA	yes	no	yes	Lipoma	no	Jacobs and Markowitz. AJR:150;1335-1336, 1988
2				TA TA	yes yes	yes yes	yes yes	Lipoma Lipoleiomyoma	no no	Dodd III and Budzik. AJR:155;317-322,1990
1					yes	yes	yes	Lipoleiomyoma		Aizenstein et al. Gynecol Oncol:40;274-6, 1991
1				TA	no	no	yes	Lipoleiomyoma	no	Ekici, Vicdan. Int J Gynaecol Obstet:42;167-71, 1993
1	9 cm	59	Abnormal liver enzymes	TA	yes	yes	yes	Lipoleiomyoma	yes	Villanueva et al. Abdom Imaging:18;402-3, 1993
1		43		TA	no	no	yes	Lipoleiomyoma	no	Pham et al. Can Assoc Radiol:44;463-5,1993
1	20 cm	44	Asymptomatic			yes	yes	Myolipoma of the round ligament	no	Sonobe et al. Virchows Arch:427;455-458, 1995
1				TA	yes	yes	yes	Lipoma	no	Alonso et al. Ginecol Obstet Mex:63;30-2, 1995
11				TA (n=5) TSV (n=6)	no	no	yes	Lipoleiomyoma	2/11	Serafini et al. J Ultrasound Med:15;195-99, 1996
1	8 cm	73	Pelvic Mass	TA	yes	yes	yes	Lipoleiomyoma	no	Tsushima et al. British J Rad:70;1068-1070, 1997
1		62	Cholelithiasis		yes	yes	yes	Lipoleiomyoma	no	Ishigami et al. Abdom Imaging:23;214-216, 1998
2	6.8 cm 5.5 cm	55 62	Asymptomatic Bleeding	TA TA	yes yes		yes yes	Lipoleiomyoma Lipoleiomyoma	yes yes	Prieto et al. Abdom Imaging:25;655-657, 2000
1			Large tumor		yes		yes	Lipoleiomyoma	no	Su et al. Eur J Gynaecol Oncol:22;439-40, 2001
1	5 cm	48	Pelvic pain	TA	yes	yes	Biopsy	Lipoleiomyoma	no	Avritsher et al. AJR:177;856-857, 2001
1		51	Bleeding	TSV	no	no	yes	Angiolipoma	no	Braun et al, 2002
1	5.5 cm	67	Low Haematocrit Warfarin therapy	TSV	yes		no	UFT°	yes	Chan et al. JHK Coll Radiol:6;30-32, 2003
1		67	Abdominal pain		yes	yes	yes	Lipoma	no	Al-Maghrabi et al. Saudi Med J:25;1492-4, 2004
1	10 cm	65	Pelvic mass	TA	yes	yes	yes	Lipoleiomyoma	no	Chawla et al. Applied Radiology Online 38-40, April 2004
1	7.8 cm	62	Bleeding	TA	yes	no	yes	Lipoma	no	Lau and Thoeni. British J Rad:78;72-74, 2005
1	7 cm	75	Abdominal pelvic pain	TSV	yes	yes	yes	Lipoma	yes	Coumbaras et al. Abdom Imaging:30;239-241, 2005
1				TA				Lipoma		Harish et al. Indian J Pathol Microbiol:48;377-8,2005
1	5 cm	53	Bleeding and pain	TSV	no	no	yes	Lipoleiomyoma	yes	Alper et al. Malta Medical J:17;40-41, 2005
1	5 cm	65	Bleeding and abdominal lump growth	TSV	no	no	yes	Lipoma	no	Deb et al. MJAFI:61;385-386, 2005
1	12 cm	72	Pelvic mass	TA	yes	no	yes	Lipoleiomyoma	no	Arikawa et al. Kurume Med J:53;37-40, 2006
1	17 cm	52	Pelvic mass	TSV	yes	yes	yes	Lipoma	no	Fujimoto et al. J Obstet Gynaecol:32;520-523,2006
1	12 cm	60	Pelvic mass	TSV	yes	yes	yes	Lipoma	yes	Fernandes et al. Indian J Pathol Microbiol:50;800-1, 2007

Table 1 continued..

9	9 cm 10 cm 10 cm 9 cm 4 cm 3.5 cm 6 cm 6.5 cm 4.5 cm	65 76 64 47 55 49 64 70 55	Abdominal pain Abdominal pain Abdominal pain Abdominal pain Bleeding Bleeding Bleeding Dysuria Anaemia	no	no	yes	yes	Lipoleiomyoma	6/9 yes	Kitajima et al. AJR:189;W100-104, 2007
1				TA	yes	yes	no	UFT°	no	Erdem et al. Magn Reson Imaging:25;1232-6, 2007
1	11 cm	60	Cholecystitis	TA	yes	no	yes	Lipoleiomyoma	no	Chakravarty-Vartak et al. BHJ Epub April 2007
1	18 cm	80	Asymptomatic	TA	yes	yes	yes	Lipoleiomyoma	no	Fujiwaki et al. Arch GynecolObstet:277;471-474, 2008
1	55 cm	43	Constipation	TA	no	no	yes	Lipoleiomyoma	no	Akhulut et al. Arch Gynecol Obstet:278;291-295, 2008
1	2 cm	66	Asymptomatic	TVS	yes	no	no	UFT°	no	Mylona et al. Eur Clinics ObsteGynaecol: 3;135-136,2008
1	8 cm	68	Asymptomatic	TA	yes	yes	yes	Lipoleiomyoma	no	Loffroy et al. GynecolObstetInvest: 66;73-75;2008
1	5 cm	48	Abdominal pain	TA	no	no	yes	Lipoma + ovarian thecoma	no	Vilallonga et al. Hindawi Publish Corp ID 340603, 2009
1		58	Abdominal pain and Bleeding				yes	Lipoleiomyoma		Mignogna et al. Arch Gynecol Obstet:280;1071-74, 2009
1	4.8 cm	57	Abdominal pain	TA	no	yes	yes	Lipoma	yes	Akyildiz et. Korean J Pathol:44;679-81, 2010
1	3.5 cm	50	Bleeding	TSV	no	no	yes	Lipoleiomyoma	yes	Manjunatha et al. J Midlife Heath:1;86-88, 2010
1	6 cm	70	Abdominal pain	TA	no	no	yes	Lipoma (calcified)	no	Bandopadhyay et al. J Turkish-German Gynecol Assoc:11;113-4, 2010
1	14 cm	61	Pelvic mass	TA	yes	no	yes	Lipoleiomyoma	no	Bindra, Sharma. The Internet J of Gynecol Obstet: 12, 2010
1	6 cm	63	Abdominal pain Bleeding	TSV	no	no	yes	Lipoma	no	Vamseedhar et al. India J Cancer:48; 385-387, 2011
1	9 cm	70	Bleeding and pelvic mass	TA	CT	no	yes	Lipoleiomyoma	no	Terada T. Ann Diagn Pathol: Epub June 6;2011
3	2.4 cm 12 cm 2.4 cm	79 61 72	Cholecistic pain Abdominal pain-cholecistic pain Intermittent abdominal pain	TA TA TSV	yes yes yes	yes yes yes	no no no	UFT° UFT° UFT°	no no no	Chu et al. World J Radiol:4;58-62,2012
1	3 cm		Asymptomatic	TSV	yes	yes	no	UFT°	no	Antony J. hcp.obgyn.net 2012
2	9 cm 1.5 cm	58 60	Dysuria Uterine prolapse	no no	no no	no no	yes yes	Lipoleiomyoma Lipoleiomyoma	no no	Singh et al. JCDR:6;718-719, 2012
1	2 cm	37	Pelvic pain	TSV	yes	yes	no	UFT°	no	Loberant et al. Imaging Science Today 2012
70^	7.7*	57*								

Table 1: Clinical case reports.

No. of cases	Age	Size	Symptoms	Histology	Fibroids	Incidence	Study period	References
4 + 21 cases literature	56 47 64 61 62*	8 cm 8 cm 18 cm 7 cm 7 cm*	Bleeding Abdominal Pain Asymptomatic Bleeding	Lipoleiomyoma Lipoleiomyoma Lipoma Lipoleiomyoma	no no yes no		1965-1976	Willen et al. Virch Arch A Path Anat Histol:377;351-361, 1978
3	83 80 73	20 cm 2.5 cm 2 cm	Enlarged abdomen Asymptomatic Bleeding	Lipoleiomyoma Lipoleiomyoma Lipoleiomyoma	yes yes no	3/54000 (0.005%)	1979-1982	Pounder. J Clin Pathol:35;1380-1383, 1982
1			Translocation Chromos 12	Lipoleiomyoma	yes			Havel et al. Virch Arch B Cell Path:57;77-79, 1989
1	55		Cholecystic pain	Atypical lipoleiomyoma				Lin and Hanai. Pathol International: 41; 164-169. 1991
1				Bizarre epithelioid Lipoleiomyoma				Brooks et al. Int J Gynecol Pathol:11;144-9, 1992
10				9 lipoleiomyomas 1 lipoma				Resta et al. Pathol Res Pract:190;378-83, 1994
5	78 67 73 74 60	5.3 cm 7 cm 3.5 cm 3.6 cm	1 angiomyolipoma 4 lipoleiomyoma	2/5				Shintaku. Pathol Int:46; 498-502, 1996
1				Lipoleiomyoma				
1				Lipoleiomyoma		0.8%		Gentile et al. Pathologica:88;132-4, 1996
1				Lipoleiomyoma		0.28% (fibroids) 0.39% (hysterectomies)		Dellachà et al. Pathologica:89;737-41, 1997
17	45-74			6/17 angiomyolipomas	10/17	0.35%	1983-2003	Lin et al. Int J Gynaecol Obstet:67;47-9, 1999
1	57	11 cm	Bleeding	Plexiform lipoleiomyoma				Morelli et al. Arch Gynecol Obstet:274;117-118, 2006
50	54*	4.6* cm		Lipoleiomyoma		2.1%	1998-2004	Wang et al. Int J Gynecol Pathol:25;239-42, 2006
3				Lipoleiomyoma				Kondi-Pafiti et al. Eur j Gynaecol Oncol:27;73-7, 2006
10	53*	4.75* cm	Pain, Bleeding	Lipoleiomyoma		1.4%	1999-2007	Bolat et al. Turkish J Pathol: 23: 82-86, 2007
2	47 66	9 cm 30 cm		Lipoleiomyoma Giant lipoleiomyoma	no no			Terada T. Appl Immunohistochem Mol Morphol: Epub Jan 26, 2012
132^	65*	9.6*						

Table 2: Pathology review studies.

^ Total n of cases * mean values

No. of cases	Histology	Reference
1	Uterine lipoma and endometrial cancer	Tlodka Pluszczyk et al. <i>Patologia Polska</i> :36;223-227, 1968
1	Uterine sarcoma with liposarcomatous diff.	Bapat et al. <i>Int J Gynaecol Obstet</i> :28;71-5, 1989
1	Uterine lipoma and endometrial cancer	Douvier et al. <i>J Gynecol Obstet Biol Reprod</i> :19;301-305, 1990
2	Sarcomas with both lipo and leiomyo-sarcoma cells	Suster et al. <i>Am J Surg Pathol</i> :17;905-911, 1993
1	Liposarcoma of the uterus	Schneebauer et al. <i>GynakolGeburt Rundsch</i> :36;90-91, 1996
1	Uterine lipoma and endometrial cancer	Di Gesu et al. <i>Eur J Obstet Gynecol Reprod Biol</i> :80;199-200, 1998
9	Lipoleiomyosarcoma	Folpe, Weiss. <i>Am J Surg Pathol</i> :26;742-9, 2002
1	Pleomorphic liposarcoma	Levine et al. <i>Int J Gynecol Pathol</i> :22;407-411, 2003
1	Liposarcoma	Karateke et al. <i>Int J Gynecol Cancer</i> :15;1230-1234, 2005
1	Uterine lipoma and cervical cancer	Dilek et al. <i>Int J Gynecol Cancer</i> :16;445-7, 2006
1	Lipoleiomyosarcoma	Abhimanyuja et al. <i>NJ Obstet Gynaecol</i> :2;67-70, 2007
1	Uterine lipoleiomyoma and endometrial cancer	Bolat et al. <i>Turkish J Pathol</i> :2382-86, 2007
3	Liposarcoma arising in uterine lipoleiomyoma	McDonald et al. <i>Am J Surg Pathol</i> :35;221-227, 2011

Table 3: UFT: Oncological data (association with uterine cancers in 24/226 cases = 10%).

to study their incidence [23,24]. Despite all the UFT appear similar (with a bright yellow colour and soft tissue consistency) they show, after microscopy, different histological constitution. The high range of histopathological appearance has caused a proliferation of synonyms for UFT. The more common synonyms include lipoleiomyoma, myolipoma, lipofibroma, lipomyoma, fibromyolipoma, mixed lipoma, and lipomatosis of the stroma of a uterine fibroid. According to DJ Pounder (1982) [25] uterine fatty tumours (UFT) may be defined as tumours composed entirely or in part of adult type adipose tissue. Smooth muscle and fibrous tissue are usually intermixed. The presence of fat in the uterine corpus is not exceptional and in fact it is known that some leiomyomas have an adipose tissue component in variable proportions associated to smooth muscular fibres. These are known as

lipoleiomyomas and have to be considered aside from the pure lipomas which exclusively comprise of mature adipose tissue. The pathogenesis however remains obscure. Immunocytochemical studies confirm the complex histogenesis of these tumours, which may directly arise from pluripotent mesenchymal cells or from direct transformation of smooth muscle cells into adipocytes [26,27]. Probably we are dealing with tumour-types having different pathogenesis and therefore different biological susceptibility to oncogenes. A number of various lipid metabolic disorders or other associated conditions with estrogen deficiency as occur in peri or post menopausal period possibly promote abnormal intracellular storage of lipids [28]. As shown by Terada [24] the fatty tissue of lipoma is not degenerative but active proliferative tissue and could be responsible of local productions of estrogens and increased risk of malignant transformation. Wang et al [3] studying 50 patients with UFT for a 7 years period of time have reported that these tumours have an uneventful clinical course and should be confidently regarded as benign. Nevertheless, liposarcomas of the uterus, although extremely rare, exist and are shown to likely arise from malignant transformation of a lipoleiomyoma [29] and have to be added to the differential diagnosis of benign lipomatous tumours (UFT), myxoid mesenchymal tumours, and malignant mixed Mullerian tumours of the uterus. The striking observation of endometrial cancers found in concomitance with lipomas, as here reported, has an independent and different oncological implication. Deeper investigation on this field is requested before making progress on the oncological risk of the UFT which remain rare tumours undergoing hysterectomy most of the times.

Conclusion

UFT are not so uncommon and always benign neoplasm as generally stated. The histogenesis of these lesions is still controversial. The clinical manifestations do not usually differ from those caused by leiomyomas, except that they affect overweight and obese perimenopausal and aged postmenopausal women. Data on body weight and BMI, however, are missing and should better be given in future. Preoperative diagnosis is not difficult as far as these tumours are of small size and appear hyperechogenic intramural nodules at transvaginal ultrasound. A more difficult task is in case of big and subserosal tumours whose accurate diagnosis requires CT and MR imaging. Diagnosis of pure lipoma rather lipoleiomyoma should be made only postoperatively on histopathology which is also important to rule out the possibility of malignancy. The adoption of proper terminology (“uterine fatty tumours - UFT”) definition in clinical studies and “lipoma” or “lipoleiomyoma” after histology, should be respected.

Total number of cases (357 cases) 1816 -1966 = 131	Mean age (years)	Prevalence in women < 54 y.o.	Mean size (cm)	Pre-op radiol studies (46)	Incidence of lipoma	Symptoms	Leiomyomas
1966-2012 = 226	Table 1 (47 cases) = 57 Table 2 (16 cases) = 65 Willen st. (21 cases) = 62 Wang study (50 cases) = 54 Bolal study (10 cases) = 53	23% (19/83)	Table 1 (46 cases) = 7.7 Table 2 (14 cases) = 9.6 Willen study (21 cases) = 7 Wang study (50 cases) = 4.6 Bolal study (10 cases) = 4.75	16/46 (us+ct+mr) 4/46 tsv us only 2/46 mr only	15% (18/121 cases)	34% (17/50) pain or pelvic mass 22% (11/50) no symptoms 20% (10/50) bleeding 10% (5/50) cholecistic problems	33.3% (34/102)

Table 4: Summary of principal variables on UFT.

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