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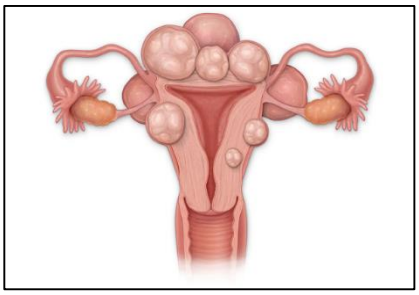
Long-term outcomes of MR-guided focused ultrasound (MRgFUS) for treating uterine fibroids

Introduction



Uterine fibroids, the most common benign pelvic tumour in women, affect 70% of women of reproductive age.[1] Over 30% of them require intervention due to symptoms like infertility, back pain, stomach discomfort, abnormal uterine bleeding, and excessive menstrual haemorrhage.[2] Treatment options include medical treatments, surgical alternatives like hysterectomy or myomectomy, and conservative methods like uterine artery embolisation (UAE) or MRI-guided focused ultrasound (MRgFUS).[3] MRgFUS causes coagulative necrosis, reducing fibroid tissue function, leading to better symptom alleviation. However, most follow-up studies continue up to five years, and there is limited evidence on menopausal transition and fertility outcomes after treatment. So, this study evaluated yearly re-intervention rates among women who received MRgFUS over seven years by assessing pregnancy outcomes, menopause onset, and age-related risk of further procedures.[4]

Methods

This retrospective cohort study included 99 women who had MRgFUS at one tertiary medical centre between 2013 and 2020 and had symptomatic uterine fibroids. Those who underwent MRgFUS due to adenomyosis were not included. Information gathered included the patients' age at the time of the MRgFUS procedure, the date of therapy, gravida, parity, prior laparotomies, and the UFS-SSS-QOL (uterine fibroids) symptom-quality of life-symptom severity score before the surgery. Fibroids' signal intensity on T2 weighted imaging, comorbidities, desire for future fertility, number of MRgFUS treatments (1 or 2), and NPV of the fibroids after the surgery are all factors considered, and follow-up interviews were also done. Re-intervention rates and predictors of further treatments were assessed using Kaplan-Meier curves and Cox regression analysis.

Results

Re-intervention was necessary for 33.1% of women with persistent fibroid symptoms after a median follow-up of 6.1 years. The median age of the patients was 43 years. Re-intervention rates among women aged ≤43 years were substantially higher than those of women aged 44+ years (47.5% vs. 16.7%, p=0.005) (Figure 1). By applying multivariable Cox regression, age was shown to be the only significant predictor of re-intervention (HR > 44 vs. < 43; 0.303 95% CI 0.128–0.714, p = 0.006). Following MRgFUS, 16 women became pregnant, leading to 21 pregnancies, 72.2% live births (13 successful delivery), and a 22.2% spontaneous miscarriage rate (mainly in the first trimester). One postpartum haemorrhage and one episode of intrauterine

growth restriction were documented. The average menopausal age was 51.4 years, which is comparable to norms worldwide.

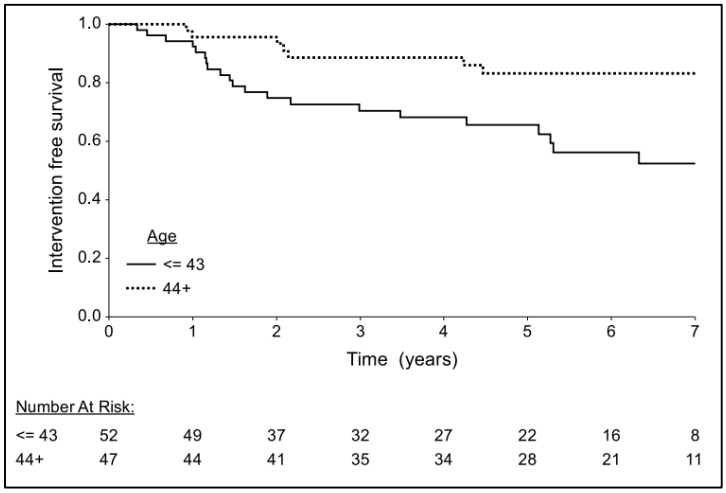


Figure 1. Kaplan–Meier curves describing the need for surgical interventions during the follow-up period.

Discussion

In younger women, age is a key predictor of re-intervention requirements because they desire future children, whereas fibroids might disrupt the pregnancy and conception, which may increase their willingness to seek more treatments and endure procedures. Another explanation would be that the older women had undergone menopause and had a greater rate of prior operations before MRgFUS therapy. The fibroids developed no symptoms as a result.[4] The similar research by Gorny et al. shows that the re-intervention rates were 19% and 23%, following 3 and 4 years of MRgFUS treatments. The need for re-intervention was lower in older women with fibroids that were neither bright nor heterogeneous on T2-weighted MR imaging.[5]

Conclusion

MRgFUS is a useful, non-invasive treatment for uterine fibroids with associated symptoms. The rates of re-intervention are lower in older women. Post-MRgFUS pregnancies are feasible, and the operation doesn't seem to have an impact on menopause onset. Age tends to be a significant indicator of additional re-intervention.

MRI-guided focused ultrasound (MRgFUS) is a safe and effective treatment for uterine fibroids with low re-intervention rates.

References

1. Stewart EA et al. Epidemiology of uterine fibroids: a systematic review. BJOG. 2017 Sep;124(10):1501-1512.
2. Vannuccini S et al. The modern management of uterine fibroids-related abnormal uterine bleeding. Fertil Steril. 2024 Jul;122(1):20-30.

3. Lee S and Stewart EA. New treatment options for nonsurgical management of uterine fibroids. Curr Opin Obstet Gynecol. 2023 Aug 1;35(4):288-293.
4. Inbar Y et al. Long-term outcomes and re-intervention rates in women undergoing mri-guided focused ultrasound (mrgfus) for uterine fibroids: a 7-year follow-up study. J Assist Reprod Genet. 2025 Feb 3:1-6.
5. Gorny KR et al. Incidence of additional treatments in women treated with MR-guided focused US for symptomatic uterine fibroids: review of 138 patients with an average follow-up of 2.8 years. J Vasc Interv Radiol. 2014 Oct;25(10):1506-12.

Association between tinnitus and menstrual cycle disorders in premenopausal women

Introduction

Tinnitus is a common health problem that affects 14% of people worldwide, with 2% of those affected having severe symptoms. Women typically suffer from a higher degree of impairment, even though data shows that prevalence is equivalent among men and women.[1] Tinnitus may be associated with menstrual cycle-related diseases, such as pregnancy and menstrual cycle disorders, according to the earlier studies.[2] The two most common disorders related to the menstrual cycle are dysmenorrhea and premenstrual syndrome. Dysmenorrhea, defined as painful menstruation due to the absence of pelvic disease, which can manifest as either primary or secondary.[3] Though their relationships are not fully understood, dysmenorrhea and tinnitus are both prevalent and have a detrimental effect on the health and well-being of premenopausal women. So, this study investigated the relationship between premenopausal women's tinnitus and menstrual cycle abnormalities.[4]

Methods

A prospective cross-sectional study was carried out among 558 premenopausal women who answered questions about their demographics, gynaecological history and tinnitus symptoms. The inclusion criteria included premenopausal women who are 18 years of age, while women who were pregnant, nursing, or menopausal women were excluded. The study evaluated the relationship between tinnitus and several menstrual problems, such as dysmenorrhea (primary, secondary, or premenstrual syndrome) and distinct menstrual cycle patterns (regular, hypomenorrhea, menorrhagia, oligomenorrhea, and polymenorrhea).

Results

Among the subjects, 74.4% reported having dysmenorrhea, and 33% reported having tinnitus. Menorrhagia (20%) and hypomenorrhea (11.11%) were the two most common pathological menstrual patterns. The findings showed that premenopausal women with secondary dysmenorrhea (p value<0.001) or menorrhagia (p value<0.002) had significantly higher levels of tinnitus than those without tinnitus (Figure 1). Tinnitus and secondary dysmenorrhea and menorrhagia were found to be correlated even after controlling for potential confounding factors such as age, marital status, parity, income, smoking status, body mass index,

psychological health issues, tension headache, migraine, vitamin D deficiency, insomnia, and dyslipidaemia.

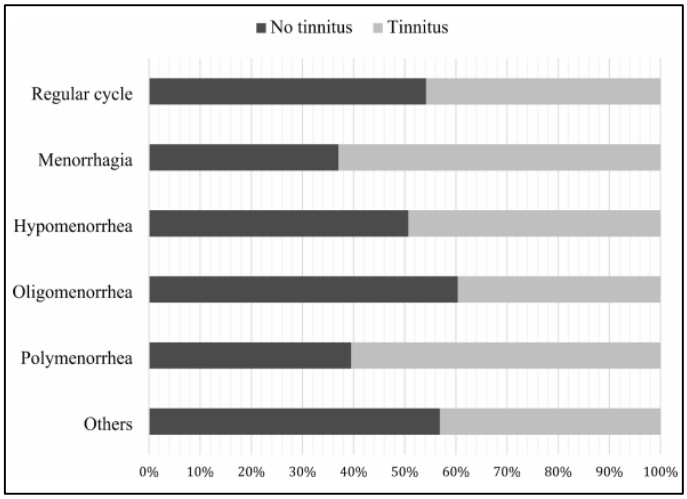


Figure 1. Tinnitus presence among the different menstrual cycle patterns.

Discussion

This study outcome aligns with Yu et al., which found a correlation between irregular menstrual cycles and tinnitus, as it mainly focused on cycle length.[2] Also, it was identified that secondary dysmenorrhea and menorrhagia were key predictors of tinnitus, highlighting that not just irregularity, but also the severity of menstrual disorders, play a crucial role. Both the studies suggest that hormonal imbalances, stress and anxiety may contribute to tinnitus, but this study further identifies obesity, hypothyroidism, insomnia and vitamin D deficiency as additional risk factors and thereby emphasize the need for a multidisciplinary approach, where gynaecologists and audiologists collaborate to improve tinnitus management in premenopausal women.[4]

Conclusion

Women who suffer from tinnitus or menstruation abnormalities may experience significant negative effects on their health, and a better knowledge of these conditions may lead to better treatment for patients.

Hormonal changes in premenopausal women may contribute to tinnitus, highlighting the need for better awareness and care.

References

1. Jarach CM et al. Global Prevalence and Incidence of Tinnitus: A Systematic Review and Meta-analysis. JAMA Neurol. 2022 Sep 1;79(9):888-900.
2. Yu JN et al. Association between menstrual cycle irregularity and tinnitus: a nationwide population-based study. Sci Rep. 2019 Oct 1;9(1):14038.

3. Szmidt MK et al. Primary Dysmenorrhea in Relation to Oxidative Stress and Antioxidant Status: A Systematic Review of Case-Control Studies. Antioxidants (Basel). 2020 Oct 15;9(10):994.
4. Zuriekat M et al. The link between tinnitus and menstrual cycle disorders in premenopausal women. Sci Rep. 2025 Jan 22;15(1):2821.

Validity of the Framingham Risk Score as a predictor of CVD risk in PCOS patients

Introduction

Cardiovascular disease (CVD) affects millions worldwide and is responsible for 32% of total fatalities in 2017.[1] The Framingham Risk Score (FRS) was created using data from the Framingham Heart Study and has been proven to be a reliable indicator of CVD risk across a range of groups; it is one of the most used instruments for predicting the 10-year risk of CVD.[2] Polycystic ovarian syndrome (PCOS) may also increase CVD risk, as it has metabolic and hormonal characteristics that may make women more susceptible. The risk of CVD is unknown, especially among women who have not yet attained menopause.[3] This study used data from the Tehran Lipid and Glucose study (TLGS) and determined whether the FRS is a reliable indicator of CVD risk in women with PCOS.[4]

Methods

This prospective cohort study examined the Framingham Risk Score (FRS) as a predictor of cardiovascular disease (CVD) risk in women with polycystic ovarian syndrome (PCOS) by analyzing data from the Tehran Lipid and Glucose research (TLGS). About 215 women over 30 years with PCOS were included out of a total 4,435 women from TLGS. A trained interviewer used a standard questionnaire to obtain information about demographic status, personal and familial CVD history, medical and medication history, and smoking habits. The earlier investigations have reported on assessing parameters like physical activity, blood pressure, fasting plasma glucose, and lipid profiles, as well as the test procedures. CVD, which encompasses any heart-related event, including coronary heart disease (CHD), stroke, and cerebrovascular events, was the study's primary endpoint. Using a Cox proportional hazards model, the association between the FRS and CVD incidence was evaluated. The Hosmer-Lemeshow test, the ROC curve, and the area under the ROC curve (AUC) statistics were used to evaluate discrimination and calibration, while the C-statistic was used to measure model accuracy.

Results

The CVD risk increased by 38%, according to Cox proportional hazards models [HR: 1.38 (95% CI: 1.14, 1.66, $p<0.001$)], with every unit rise in the FRS score, and by 19% [1.19 (1.01, 1.41); $p=0.045$]. The FRS demonstrated an acceptable fit for CVD prediction in PCOS patients, as evidenced by its C-statistic of 0.765. The ROC curve's AUC of 0.82 indicated that the FRS was discriminating well (Figure 1a). Blood pressure, triglycerides, LDL cholesterol, waist

circumference, and BMI were elevated in proportion to higher FRS scores. Women with BMIs ≥27.5 kg/m² were 1.30 (95% CI: 1.01, 1.70) more likely to have CVD, according to subgroup analysis. The Hosmer-Lemeshow test revealed a fair calibration, with the estimated probability of CVD consistent with the reported CVD rates (p=0.217) (Figure 1b).

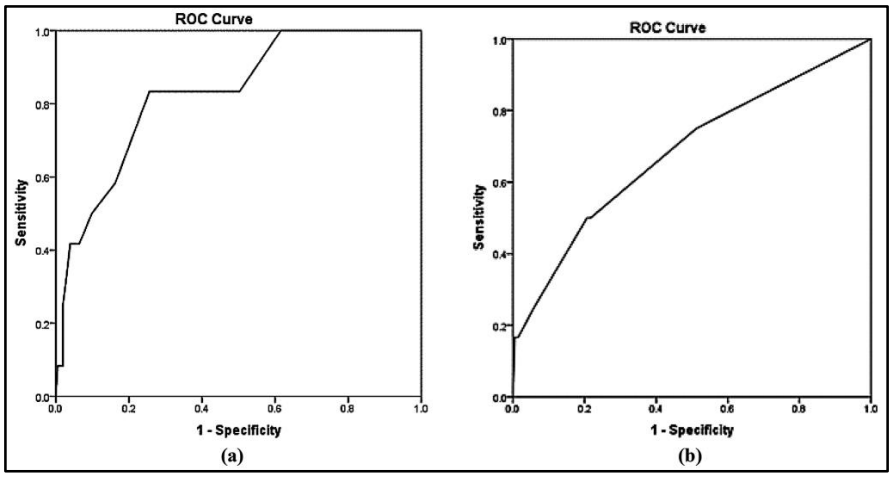


Figure 1. ROC curves using the Framingham Risk Score in women with PCOS participated in TLGS; (a) Original Framingham Risk Score; (b) Framingham Risk Score excluding total cholesterol (TC), systolic blood pressure (SBP), and high-density lipoprotein cholesterol (HDL-C) from the original construct.

Discussion

Cardiometabolic hazards were more common in patients with greater FRS, which explains the higher risk of CVD in PCOS patients as indicated by FRS. Women with higher CVD risk had higher levels of SBP, TG, TC, and LDL-C, higher rates of hypertension, T2D, and MetS, and higher anthropometric measurements (BMI, WC, WHR, and WtHR) than women with lower CVD risk. FRS's predictive accuracy (AUC=0.82) indicates that it was a useful screening tool for determining PCOS patients' early CVD risk.[4] Even though PCOS women have greater metabolic risk factors, their cardiovascular risk may be underestimated by standard risk models, according to Meun et al. This highlights the need for PCOS-specific CVD risk assessment methods.[5]

Conclusion

PCOS patients had a significantly higher risk of CVD. For every unit rise in the FRS, the FRS accurately forecasts a 38% increase in the risk of CVD. The study also confirmed that the FRS is a reliable indicator of these individuals' risk for CVD.

The Framingham Risk Score (FRS) predicts higher cardiovascular risk in women with PCOS, emphasizing the need for early screening and prevention.

References

1. Bisanzio D et al. Global, regional, and national age-sex-specific mortality for 282 causes of death in 195 countries and territories, 1980–2017: a systematic analysis for the global burden of Disease Study 2017. Lancet. 2018; 392:1736–88.
2. Wallisch C et al. External validation of two Framingham cardiovascular risk equations and the Pooled Cohort equations: A nationwide registry analysis. Int J Cardiol. 2019 May 15; 283:165-170.
3. Ramezani Tehrani F et al. Cardiovascular events among reproductive and menopausal age women with polycystic ovary syndrome: a systematic review and meta-analysis. Gynecol Endocrinol. 2020 Jan;36(1):12-23.
4. Amiri M et al. Cardiovascular disease risk prediction by Framingham risk score in women with polycystic ovary syndrome. Reprod Biol Endocrinol. 2025 Feb 4;23(1):19.
5. Meun C et al. The cardiovascular risk profile of middle-aged women with polycystic ovary syndrome. Clin Endocrinol (Oxf). 2020 Feb;92(2):150-158.

Cutaneous metastases as the first indicator of invasive lobular breast cancer: A rare case report

Introduction

Cutaneous metastasis (CM) is a rare clinical indicator that occurs when cancer cells from an internal tumour extend directly to the skin or via lymphatic or vascular channels.[1] Patients with CM frequently have concomitant metastases to the brain, liver, and bones, among other organs. Although several diseases can induce CMs, breast cancer (BC) is the most common cause in women and mostly affects the thoracic region.[2] CMs are the first clinical manifestation in only 3.5% of patients with BC, and they are seen in 6.3% of cases at the time of primary tumour diagnosis.[1] Patients with CM have a terrible prognosis, either single or many skin lesions, and a death rate of more than 70% during the first year after being diagnosed with BC.[2] This case report describes a patient with BC who was first discovered to have asymptomatic infiltrating nodules in the trunk and axilla. These lesions were identified as BC CMs by additional studies.[3]

Case presentation

A 53-year-old woman had asymptomatic nodules in her trunk and axillae that had grown over the course of five months. She also lost 10 kg of weight, was anorexic, and felt exhausted. After a punch biopsy, histological investigation showed extensive infiltration of atypical cells with big nuclei, conspicuous nucleoli, and atypical mitoses, which are indicative of metastatic undifferentiated carcinoma. In 50% of tumour cells, immunohistochemical labelling revealed positive nuclear staining for the oestrogen receptor (ER) with ++/+++ intensity, negative staining for the progesterone receptor (PR), and weak cytoplasmic and negative membranous staining for HER2-neu (c-erbB-2) (Figure 1). The metastases' mammary origin was verified by controls, which is consistent with lobular-type metastatic cutaneous adenocarcinoma. Further analysis revealed high levels of carcinoembryonic antigen (CEA) at 6.37 ng/mL and cancer antigen (CA 15-3) at >500 U/mL. In addition to hormone treatment with aromatase inhibitors, the patient received 125 mg of palbociclib. The CA 15-3 and CEA values increased even after the skin lesions disappeared, suggesting that the illness was still progressing. The patient

experienced lower extremities oedema, ascites, and coughing four months following therapy. No lung metastases were seen, but a computed tomography scan showed a substantial build-up of ascites and pleural effusion. Although the patient's cutaneous lesions initially improved, her situation deteriorated, and she passed away seven months after being diagnosed with CM originating from primary breast cancer.

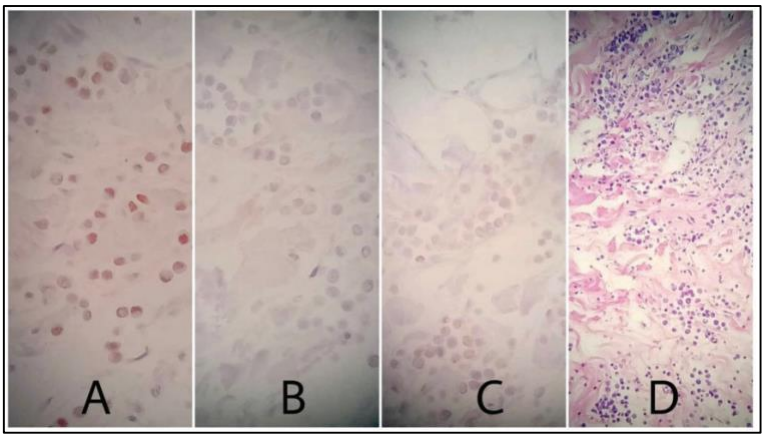


Figure 1. Immunohistochemical staining showing (a) positive nuclear staining for estrogen receptors in 50% of the tumor cells, with staining intensity of ++/+++, (b) Negative nuclear staining for progesterone receptors in the tumor cells, (c) Faintly cytoplasmic positive and negative membranous staining for HER2-neu (c-erbB-2) and (d) Hematoxylin and eosin staining.

Discussion

Even though there was no discernible breast lump, the initial indication of invasive lobular cancer was skin nodules. The diagnosis was validated by histopathology, highlighting the importance of early biopsy. Despite systemic therapy, CMs have a dismal prognosis and develop quickly. The main strategy is systemic treatment, and improved results depend on early detection with a multidisciplinary team.[3] A similar study by Xu et al. highlighted the need for early biopsy and systemic assessment for therapy when a patient had cutaneous metastases, the initial indication of metastatic breast cancer.[4]

Conclusion

Skin metastases are important markers of breast cancer (BC), and early clinical evaluation is essential to prevent the disease's spread. When it comes to people with cancer or chest problems, persistent lesions need a complete evaluation that includes a biopsy, and effective treatment needs people from different areas of healthcare to work together.

Cutaneous metastases can be the first sign of invasive lobular breast cancer requiring early biopsy for timely diagnosis.

References

1. Johnson C et al. Cutaneous Manifestation as Initial Presentation of Metastatic Breast Cancer: A Systematic Review. Cutis. 2021 Mar;107(3): E29-E36.
2. González-Martínez S et al. Clinical, Pathological, and Molecular Features of Breast Carcinoma Cutaneous Metastasis. Cancers (Basel). 2021 Oct 28;13(21):5416.
3. Karaja S et al. Cutaneous metastases of invasive lobular breast cancer as the first clinical manifestation: a case report. J Int Med Res. 2025 Feb;53(2):3000605251314804.
4. Xu L et al. Case report: Cutaneous metastases as a first manifestation from breast cancer with concurrent gastric metastases. Front Pharmacol. 2024 Mar 4; 15:1356167.