

Hrvatsko društvo za ginekološku urologiju Hrvatskoga liječničkog zbora

Hrvatsko društvo za ginekološku urologiju Hrvatskoga liječničkog zbora i Zagrebačka škola uroginekologije prepoznata je u regionalnom i međunarodnom okviru kao značajan čimbenik u razvoju struke, znanosti i edukacije iz spomenutog područja. Klinika za ženske bolesti i porode Kliničkoga bolničkog centra u Zagrebu, popularna kao »Rodilište Petrova ul.«, kao začetnik uroginekologije u regiji, osnovala je još 1965. godine klinički odjel, polikliničku djelatnost i urodinamsku jedinicu za probleme nekontroliranog otecanja mokraće u žena. Zagrebačka škola je također sudjelovala u osnivanju regionalnih centara u Varaždinu, Zaboku, Osijeku, Splitu, Vinkovcima i drugim centrima. U periodu od 1965. godine do danas osmišljeno je sedam dijagnostičkih i šest originalnih operacijskih metoda u liječenju statičke inkontinencije mokraće. Uspostavljena je izravna suradnja s vodećim svjetskim uroginekološkim centrima, u kojima smo provodili stručno usavršavanje, a kao dokaz prepoznatljivosti u svijetu 1987. godine organiziran je Svjetski simpozij iz uroginekologije u Zagrebu.

U sklopu aktivnosti, 1979. godine osnovano je »Hrvatsko društvo za ginekološku urologiju« pri Hrvatskom liječničkom zboru na čelu s *prof. dr. sc. Perom Bagovićem*, svjetski priznatim stručnjakom iz uroginekologije. Prof. Bagović je bio predsjednik Društva do svoje prerane smrti 1983. godine, a u tom periodu je dao izniman doprinos u području dijagnostike, a naročito liječenja statičke inkontinencije mokraće u žena; njegove operacijske modifikacije su i do danas ostale temelj dobre uroginekološke prakse. Kao nasljednik prof. Bagovića, na mjesto predsjednika Društva izabran je *prof.*

dr. sc. Duško Miličić u čijem mandatu je postignut značajan napredak ne samo u struci, već i u međunarodnom priznavanju domaće uroginekološke škole. U sklopu i organizaciji Društva postignut je značajan doprinos u edukaciji stručnjaka iz područja uroginekologije. Organiziran je kolegij u dodiplomskoj nastavi, poslijediplomski doktorski studij u okviru Zagrebačkog sveučilišta, edukacija u specijalističkom usavršavanju te subspecijalizaciji iz uroginekologije. Nadalje, organizirani su brojni poslijediplomski tečajevi trajnog usavršavanja iz područja uroginekologije, stručni sastanci u Zagrebu i regionalnim uroginekološkim centrima sa ciljem razvoja struke i njezina prepoznavanja u međunarodnim okvirima.

Od 2004. godine na čelu Hrvatskog društva za ginekološku urologiju je *prof. dr. sc. Slavko Orešković*. U njegovu mandatu ponovno se reafirmira struka, aktivira se poslijediplomski doktorski studij, organiziraju se brojni poslijediplomski tečajevi. U organizaciji Hrvatskog društva za ginekološku urologiju i Hrvatskog urološkog društva organiziran je u lipnju 2010. godine »Prvi hrvatski simpozij ginekologa i urologa« na Plitvicama na kojemu su raspravljane brojne zajedničke teme i potvrđena važnost suradnje između ginekologa i urologa u humanoj reprodukciji, ginekološkoj urologiji i onkologiji. U organizaciji Društva publicirani su brojni priručnici iz recentnih tema iz uroginekologije, a predviđa se da će udžbenik iz uroginekologije, kao kruna cjelokupnog dosadašnjeg rada i iskustva, biti tiskan do kraja 2011. godine.

Prof. dr. sc. Duško Miličić

More about Tubal Carcinoma

Još o karcinomu jajovoda

Dear Editor!

In our journal [2010,19(4):269–272] the paper entitled *Fallopian tube adenocarcinoma – a case report*, has been published. While otherwise interesting case report from India it contains some wrong conclusions about preoperative diagnosis.

In the part of *Discussion* the authors stated that: »With all advanced investigations available we could not make

out the diagnosis of Fallopian tube carcinoma.«, and »... like ultrasonography and even CT scan failed to differentiate the tumor from ovary.«

The authors used transabdominal B mode scan which is very old and insufficient technique for evaluation of adnexal masses. Recent US techniques color Doppler and 3D sonography are much more reliable and to give to our readers proper information we decided to make

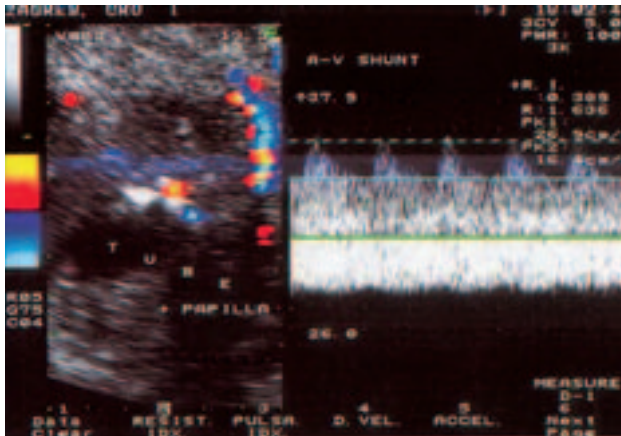


Figure 1. Fallopian tube carcinoma as seen by color Doppler ultrasound. Note vascularized papillomatous projection protruding into the distended tube in a postmenopausal patient. Low vascular resistance (RI=0.38) and arterio-venous shunt indicate tubal malignancy, which was confirmed by histopathology.

Slika 1. Karcinom tube prikazan kolor Doppler ultrazvukom. Nizak indeks otpora 0.38 otkrio je malignan proces što je potvrđeno histopatoloski.

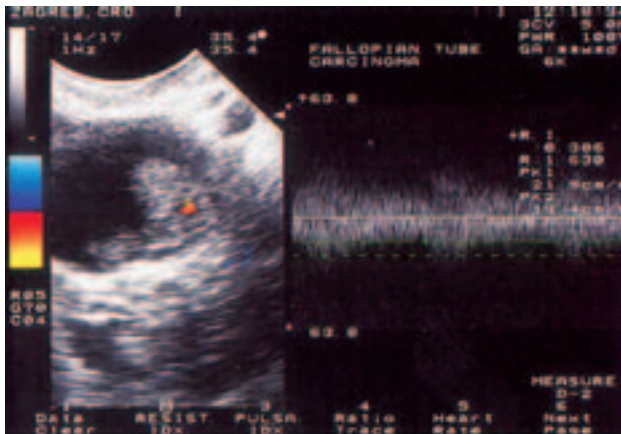


Figure 2. The same patient as in Figure 1. Cross section through the Fallopian containing vascularized carcinoma.

Slika 2. Isti pacijent kao u slici 1. sa odjekom tumora i patoloskim protokom.

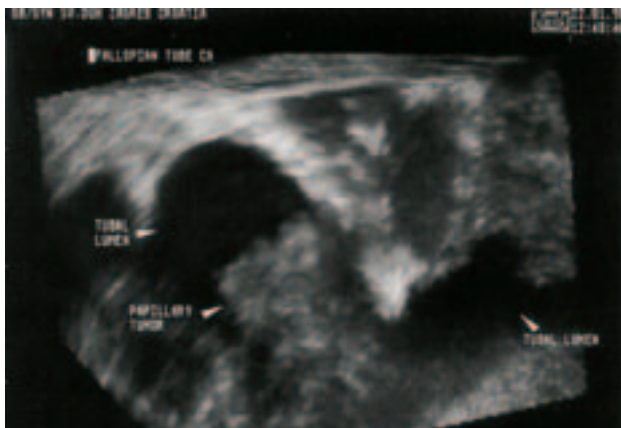


Figure 3. Three-dimensional ultrasound image of primary Fallopian tube carcinoma. Papillary protrusions suggestive of Fallopian tube malignancy are clearly seen within the distended tubal wall.

Slika 3. Trodimenzionalna slika primarnog karcinoma tube. Papile jasno prikazane u proširenom jajovodu.

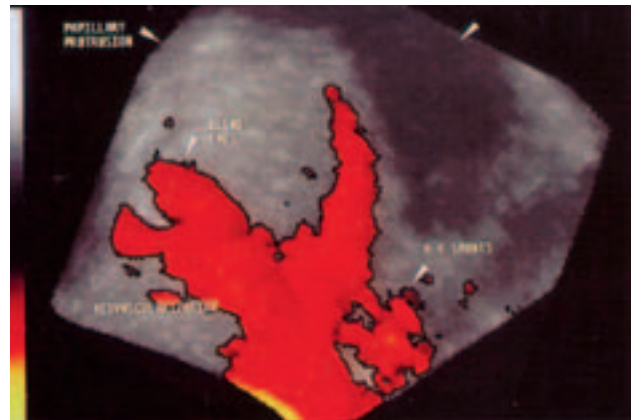


Figure 4. Three-dimensional power Doppler imaging enables evaluation of vascular geometry of the newly formed vessels in a case of Fallopian tube carcinoma. Note irregular branching of the vessels, blind-ended lakes and disproportional calibration all indicative for tumoral neovascularization.

Slika 4. Trodimenzionalni osnaženi Doppler pokazuje tipično račvanje krvnih žila sa slijepim završecima i različitim promjerom što sve govori za tumorsku neovaskularizaciju.

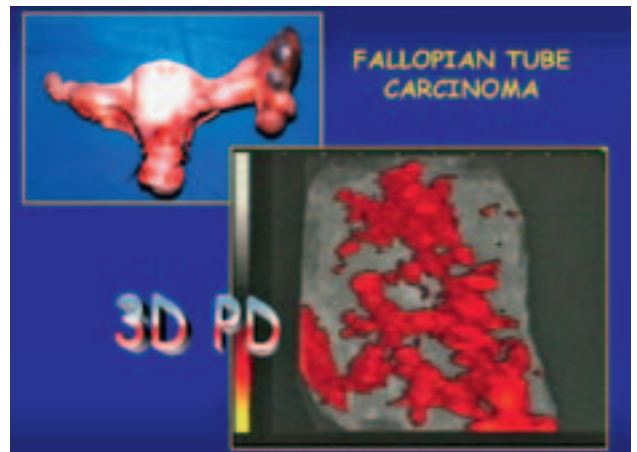


Figure 5. Upper left – macroscopic picture of surgically removed Fallopian tube carcinoma. Down right – typical malignant tumor vessel architecture visualized by 3D power Doppler ultrasound.

Slika 5. Makroskopski prikaz odstranjenih genitalnih organa s karcinomom tube (lijevo gore) te tipična maligna arborizacija tumorskih krvnih žila prikazano trodimenzionalnim osnaženim Dopplerom.

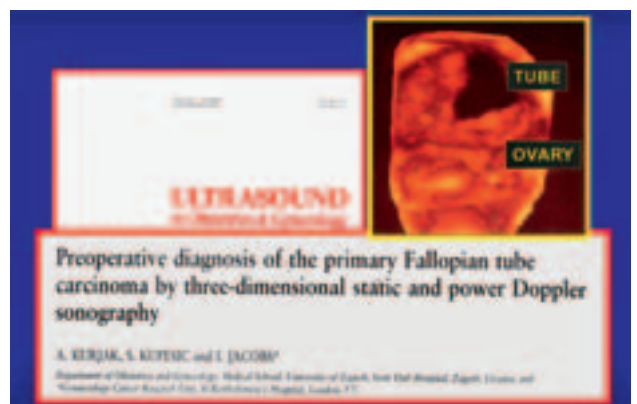


Figure 6. Our first paper on preoperative diagnosis of the primary Fallopian tube cancer.

Slika 6. Naslov našeg članka o primarnom raku jajovoda.

short review of diagnostic advances in detecting tubal carcinoma and preoperatively separate it from ovarian malignancy.

Of all gynecological cancers, malignancy of the Fallopian tube is the most rare. The triad of pain, bleeding and leucorrhoea is considered pathognomonic of tubal carcinoma. There are parameters for better differentiation between ovarian and tubal malignancies.¹

1. It derives from the Fallopian tube
2. Has the same histological structure as oviduct mucosa
3. There is a clear transition zone between benign and malignant epithelium, and
4. There is no endometrial or ovarian carcinoma

Ultrasound findings

The sonographic findings in all reported cases of Fallopian tube carcinoma were complex, predominantly cystic adnexal masses and/or sausage-shaped structures apparently separated from the uterus.²⁻¹⁵

There are some difficulties in recognizing tubal malignancy. For example, in a remarkable review of 376 cases of tubal carcinoma, McGoldrick et al.¹⁶ found only one diagnosed preoperatively. More recently, Eddy et al.¹⁷ analyzed the data of 74 patients regarding tubal malignancies and only two cases of tubal carcinoma were correctly diagnosed before surgery.

Ayhan et al.² reported a study of eight cases of primary Fallopian tube carcinoma. Dava et al.⁹ described six adenocarcinomas of the Fallopian tube that resembled the female adnexal tumor of probable Wolffian origin. Microscopically, the tumors were characterized by a predominant pattern of small, closely packed cells punctured by numerous glandular spaces, which were typically small but occasionally were cystically dilated. Soundara et al.⁴ published a review of Fallopian tube carcinoma over 20 years. Nine cases of tubal carcinoma were found among approximately 9000 gynecological malignancies.

Based on the data from the literature^{4,16,17} more than 80% of patients have had pelvic mass detected before surgery. However, cervical cytology, X-ray of the pelvis, computed tomography or hysterosalpingography are usually no more specific than the pelvic examination. Conventional transvaginal sonography is one of the most important tools too in preoperative diagnosis, but the efficacy of morphologic scoring systems alone is hampered by the degree of overlap between benign and malignant appearing adnexal masses.^{13,18-20}

Color Doppler findings

Our group was first to publish a case of primary adenocarcinoma of the Fallopian tube (stage I FIGO) preoperatively diagnosed by color and pulsed Doppler ultrasound²¹ (Figures 1–6). Podobnik et al.²² published the case of 69-year old woman with a history of right-sided

Table 1. Review of literature on transvaginal color Doppler diagnosis of primary Fallopian tube carcinoma.

Tablica 1. Pregled literature o transvaginalnoj kolor dopler dijagnostici primarnog raka jajovoda.

Reference	No. of cases	RI	Histopathology
Shalan et al. ²¹	1	0.35	adenocarcinoma
Kurjak et al. ²³	8	0.29–0.40	adenocarcinoma and papillary cystadenocarcinoma
Podobnik et al. ²²	1	0.34	clear-cell carcinoma

lower abdominal pain accompanied by profuse watery vaginal discharge for the past three months. Six years after the initial report Kurjak et al.²³ reported on the series of eight cases of preoperatively diagnosed Fallopian tube malignancy. Probably the most illustrative case of successful preoperative diagnosis of the primary Fallopian tube carcinoma is a 45-year old woman treated at Sveti Duh hospital because of infertility problems. During the routine transvaginal ultrasound examination a pendular myoma and a complex bilateral adnexal mass were discovered. In the left adnexal region a sausage-shaped cystic structure 3.4×4.8×3.4 cms in size was present. In the upper part of the cyst a solid papillary protrusion less than 1 cm, richly perfused with the lowest resistance index of 0.37 was detected. In the right adnexal region a hydrosalpinx 3.0×1.6 cms was delineated from the ovary. Moderate vascular resistance (RI=0.55) was obtained from the Fallopian tube with chronic inflammatory changes. According to the visualization of the area of neovascularization and low vascular impedance the authors suspected tubal carcinoma of the left side. Frozen section pathological examination at surgery, reported papillary Fallopian tube carcinoma. Table 1 reviews data from the literature on color Doppler diagnosis of primary Fallopian tube carcinoma.

Three-dimensional ultrasound

A new progress in diagnostic procedures was made when 3D and power Doppler ultrasound were introduced. Transvaginal 3D ultrasound enables the clinician to perceive the true spatial relations and thus easily distinguish the origin of an adnexal mass, while 3-D power Doppler allows detailed analysis of the neovascularization. Kurjak et al.²⁴ were the first to report on preoperative diagnosis of the primary Fallopian tube carcinoma by 3-D power Doppler ultrasound. Three-dimensional ultrasound was used to evaluate 520 adnexal masses prior to elective surgery during a two-years' period. These lesions were originally detected with conventional transvaginal sonography and/or transvaginal color Doppler. Patients with suspicious morphology and/or Doppler findings underwent a second assessment at the referral center by the investigator performing 3D ultrasound that was unaware of the previous ultrasound examinations. Three-dimensional transvaginal ultrasound was performed using either 5 or 7.5 MHz transvaginal transducers (Voluson 530, Kretztechnik, Austria). Once the region of the interest was identified, a

volume box was superimposed to scan the image. The patient was asked to lie still on the examination bed, while the ultrasound probe was kept steady in the vagina. Depending on the size of the volume box the scanning procedure lasted between 5 and 13 seconds. The ability to store 3-D ultrasound data on a hard disk drive allowed the investigator to keep the examination time short (between 2 and 4 minutes). Detailed analysis of the adnexal tumor was performed after the patient had gone, and lasted between 10 and 20 minutes. Rotation and translation of the stored volumes allowed evaluation of different tumor sections in many planes. The »niche mode« enabled meticulous study through selected sections of the adnexal tumor and was found especially useful in evaluation of the sausage shaped complex masses. The »surface reconstruction« allowed plastic image of the inner and outer wall of the tumor (Figure 8). Demonstration of the complex adnexal mass and/or sausage shaped cystic lesions with papillary projections was the morphological criteria for detection of the tubal malignancy.

After B-mode analysis, power Doppler imaging was switched on together with the volume mode. In order to reduce the acquisition time the volume of the color box and sweep angle were reduced. The color frame rate was adjusted as follows: both color density and color quality were as low as necessary to obtain a good color image, while pulse repetition frequency was as high as possible in order to enable the display of targeted flow velocity. The spatial peak temporal average (SPTA) intensity was approximately 80 mW/cm². Wall filters (50 Hz) were used to eliminate low-frequency signals. The patient examination time by 3-D power Doppler was 3 minutes. Using the fast line density, the average acquisition time was 48 s (range 25–88 s). At the end of each examination combined color and gray rendering mode was used, allowing simultaneous analysis of the morphology, texture and vascularization. The subsequent analysis of the power Doppler reformatted sections lasted between 5 and 10 minutes.

Demonstration of the chaotic, randomly dispersed vessels with irregular branching within the papillary protrusions and/or solid parts was suggestive of tubal malignancy. Other structural abnormalities of the malignant tumor vessels were demonstration of the microaneurysms, arterio-venous shunts, tumoral lakes, disproportional calibration, coiling and dichotomous branching. Using the above-mentioned criteria five cases of Fallopian tube carcinoma were successfully identified prior to surgery. They all presented non-pathognomic appearance by B mode ultrasound: the image was usually similar to that of pyosalpinx or a fluid-filled tube with a significant solid component adjacent to the tube. Three-dimensional transvaginal ultrasound allowed more precise distinction of the tubal mass from that of the ovary, cervix and uterus. Furthermore, the change in shape and size of the mass and passage of free fluid from tubal mass through the uterine cavity can be documented dynamically. The three perpendicular pla-

nes displayed simultaneously on the screen provided the opportunity to obtain multiple sections of the tortuous adnexal lesion by the capacity of rotation and translation in any planes. The ability to reconstruct 3D plastic images improved the recognition of the adnexal lesion anatomy, characterization of the surface features and determination of the extent of tumor infiltration through the capsule.

The »niche« aspect of 3D ultrasound revealed intratumoral structures in selected sections, which was mandatory for evaluation of the tubal pathology. Multiple sections of the tumor, rotation, translation and reconstruction allowed prediction of the tumor spread to the uterus and/or the ovary, or other surrounding structures. Shortened scanning time and detailed analysis of the stored data by trained and experienced ultrasonographer were additional advantages of 3-D over 2-D sonography.

Tubal malignancy displays angiogenesis which can be detected by color and pulsed Doppler.^{24–26} Reports from the literature demonstrate the potential of transvaginal color Doppler to depict tumor's neovascularization and low resistance indices (below 0.42) typical of tubal malignancy. Similar color Doppler results were obtained by Gojnic et al.²⁷ who reported on preoperative diagnosis of two Fallopian tube carcinomas in a group of 78 postmenopausal women with adnexal masses. Resistance index ranged between 0.20 and 0.30, and CA 125 was not remarkably elevated.

Malignant tumor vessels that are usually randomly dispersed within the central and peripheral parts demonstrate irregular course, complicated branching and disproportional calibration, features that can be recognized using three-dimensional power Doppler technology. Improved detection and classification of tumor architecture might contribute to better preoperative diagnostic for Fallopian tube carcinoma.

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