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# TRANSVAGINAL SONOGRAPHY- TECHNIQUE AND LIMITATIONS

Saba Sohail

In the last quarter of the previous century, ultrasound examination gained popularity as a powerful imaging tool producing tissue images which were nicely able to determine the location, the biological nature (solid, cystic, calcified, fatty etc.) and the dimensions of a lesion. It has remained cost effective and widely available. The application in Gynaecology and Obstetric domain has become particularly pronounced. From visualization of early pregnancy to the evaluation of the growth-retarded fetus to the tubo-ovarian pathology, the impact on management was tremendous. Infact the transabdominal ultrasound is regarded as one of the most important advances in Gyne/Obs in the last twenty years.<sup>1</sup> However, there were situations like the obese gravida and the urine- incontinent lady where technical limitations did not permit adequate pelvic imaging needed for conclusive diagnosis.

The introduction of high frequency (6 MHz and above) transvaginal probes generating clearer and sharper images overcame the problems described above. Today the dedicated vaginal probe is an essential armamentarium of any ultrasound section. Since it is operated close to the region of interest, the high frequency permits better contrast resolution. The need for distension of urinary bladder with its consequent discomfort most pronounced in the early pregnancy and stress-incontinence is obviated which is a significant advantage. In an overwhelming majority (80-90%) of circumstances, the diagnostic information obtained by the transvaginal sonography (TVS) is either as good as or better than the transabdominal sonography (TAS) and this fact was established as early as the late 1980's.<sup>2</sup> TVS can also be used for guiding transvaginal cyst, collection and follicle aspiration techniques and for sonohysterosalpingography with or without contrast.

However, the technique has its own limitations. The first and the foremost is that it displays an unfamiliar visceral orientation which cannot be described in true AP, coronal or sagittal planes. Infact it is highly operator and probe placement dependant. Even the shape of probe whether having a straight or angulated shaft, the face width and the site of firing has important implications. The observer has to re-orient according to these images which are otherwise confounding.

Because of the frequency and focal length, TVS probes have limited penetration; structures larger than 7-10 cms are beyond the focal length and field of view. Typical examples are the large ovarian cysts and the fundus of the bulky myomatous uterus.

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Although the TVS is generally regarded as a superior technique for follicle maturation evaluation, the fact often overlooked is that most of the ultrasound coupling or lubricant gels used for lubricating the probe and the covering condoms, used in place of sterile gloves for economy of cost, have spermicidal or embryocidal properties and should not be used in infertility workup.<sup>3,4</sup> Either specified sterile gels be used or the natural effect of copious cervical mucous at the uterine midcycle be brought into use.

Another important fact is the non-probability of being used in the cases of imperforate hymen, the virgin and congenital stenosing vaginal abnormalities. These are the situations where perineal or transrectal ultrasound may be used as complimentary examination. MR has proven efficacy in pelvic anatomical imaging in all these circumstances.

Social and religious implications also have important bearing in our culture and setup. Whereas taking informed consent is the correct ethical and moral practice, our patients have different socio-religious concepts than the West. Personal experience in a tertiary level public hospital of Karachi, catering to majority patients from low socio-economic strata, have led to the understanding that even transabdominal scanning or examination of a lady by palpation by male doctors, despite a female chaperone being present, may evoke embarrassing and highly hostile reactions from the male attendants. A sizeable number of male patients initially decline transrectal ultrasound on the presumption of this being a 'Lutian' (sodomy) practice. These patients require a most logical, pertinent and scientific explanation for convincing to being subjected to this type of examination technique.

Despite all these hinderances, TVS has continued to gain importance and acceptability as a reliable instrument of female pelvic evaluation in conjunction with transabdominal ultrasound.

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