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Review Article

Role of Abdominal Ultrasound to Detect Benign Prostatic Hyperplasia with Significant Factor of Age-Review Article

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ABSTRACT

Mostly in men, benign prostatic hyperplasia is serious issue. The volume of BPH increasing with urinary retention and is mostly determined by transabdominal sonography. Prostatic volume interacted negatively with high density lipoprotein cholesterol. Mostly occurrence of BPH in men with age of 45 to 60 years. BPH have lower urinary tract symptoms. About 20 recent publications suitable for literature review were retrieved from different databases like PubMed, sci.hub, and google scholar. The search on databases & search engines identified 27 articles related to topic, among which only 20 articles were as per requirement. Only 20 articles were used for extraction of data related to role of Abdominal ultrasound to detect benign prostatic hyperplasia. The current study looked at the detection of BPH with age. This review has conclusions that ultrasound is a modality of choice for evaluating the patient with BPH, it helps in diagnosis as well as prediction of urinary retention and age has a significant factor in BPH.

INTRODUCTION

For older men, benign prostatic hypertrophy (BPH) is a serious issue. BPH volume can be determined by transabdominal ultrasonography. However, the volume is not always correlated with urodynamic measures and symptoms. The zonal anatomy may now be well defined because to advancements in ultrasonography technology. Even the transition zone index is a useful indicator for predicting acute urine retention in BPH patients. A fresh dynamic aspect was offered by ultrasonography technology [1]. Men with benign prostatic hyperplasia (BPH) should have their prostatic size evaluated to determine whether a transurethral or open treatment is necessary and to prevent any consequences from a lengthy resection. When measuring the size of the prostate, digital rectal examination, urethra-cystoscopy, and retrograde urethrography may yield inaccurate results. This is especially true when the prostate is large. Transabdominal and transrectal ultrasound provide benefits that can help determine prostatic size more precisely [2]. The volume of the prostate gland interacted negatively with high-density

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lipoprotein cholesterol and favorably with systolic blood pressure, obesity, and fasting insulin. These results imply a causal link between BPH development and cardiovascular risk factors [3]. BPH-related symptoms of the lower urinary tract were present in 50% of males between the ages of 51 and 60 and in over 90% of men over the age of 80. Lower urinary tract symptoms (LUTS), which are also known as urinary problems, can either be voiding (obstructive) symptoms or storage (irritative) symptoms. Urinary retention (UR), a common urological emergency requiring hospital admission, may be present in BPH patients. Urinary catheterization is typically used to treat these patients right away. Some people with more severe cases has prostatectomy surgery, which was regarded as the best course of treatment [4]. Only 20 articles were used for extraction of data related to role of Abdominal ultrasound to detect benign prostatic hyperplasia. The current study looked at the detection of BPH with age. An ordinary urological emergency is acute urine retention brought on by BPH. But there is no agreement on how to handle this urological emergency. While in some clinics a spontaneous voiding emergency is treated with catheterization, in others an episode of ARU is a sign that a prostatectomy is necessary because the size of the prostate is a management indicator. This work builds on earlier research by Manzoor *et al.*, and later research by Malik *et al.*, by include age as a significant factor in BPH [4, 5]. IPP is a morphological alteration brought on by the prostate's lateral and median lobes expanding into the bladder too much. IPP results in a "ball-valve" type of blockage that prevents the bladder neck from acting as a funnel, leading to dyskinesia movement of the bladder during voiding. Strong bladder contractions may drive a channel to open between the lobes, but they also tend to increase the ball-valve effect in IPP, which would result in more obstruction than if there were only bilateral lateral lobes and no protrusion [6]. Additionally, according to Moudi and Akbarzadeh-Pasha diabetic patients with LUTS have larger prostates than non-diabetic patients. They studied how diabetes affects more LUTS but did not discover any association between diabetes and prostate volume or PSA levels, in contrast to the studies previously discussed [7]. According to Malu aged males who experience voiding difficulties often have alterations to their urethra, prostate, and bladder. Another noteworthy discovery was that alterations in the bladder, such as bladder instability, decreased bladder compliance, and decreased bladder capacity, may be the root cause of lower urinary infections [8]. Although prostate-specific antigen testing has some usefulness in diagnosing men with symptomatic BPH, its primary function in this context is prostate cancer screening. Men who are becoming older are becoming more aware of the dangers of prostate cancer and the value of PSA testing in early detection [9]. According to a theory put forth by Sundaram *et al.*, BPH develops with time. There are three potential causes of BPH development: i) because of a change in the prostatic stromal-epithelial interaction that results in the induction of prostatic growth; ii) because of a shift in prostatic androgen metabolism that occurs with aging, leading to an abnormal accumulation of dihydrotestosterone; and iii) because of an increase in the number of prostatic stem cells and/or an increase in the clonal expanding of the stem cells [10]. Numerous researchers have looked for prostatic morphological traits that are more strongly related to symptom intensity, BOO than TPV. It is commonly known that BPH grows in the prostate's transitional zone [11]. A morbidity rate of 19% has also been found by some studies. Therefore, innovative BOO evaluation methodologies are urgently required to get over these restrictions. As a non-invasive approach alternative to urodynamic investigations, we aimed to identify the association between IPP and BOO in conjunction with the prostatic volume in this study [12]. Regression of BPH in humans has been caused by testicular suppression caused by LHRH agonists [13]. Previous research has shown a positive correlation between blood glucose levels and prostate volume, with the prostate volume increasing with fasting blood glucose levels [14]. Without a doubt, computed tomography and magnetic resonance imaging produce the most precise results for estimating a decrease in prostate volume, but the two techniques are expensive and time-consuming. You can choose between suprapubic and transrectal access with sonography [15]. Sonographically, the Transition Zone is slightly hypoechoic. Its boundary with the outer zone is clearly visible [16]. Due to the omission of the role of abdominal pressure in urination, Liu *et al.*, observed that BOOI is frequently inconsistent with endoscopically verified blockage. As a result, they developed the idea of modified BOOI and shown that modified BOOI can more accurately predict BOO in patients with LUTS/BPH [17]. The assessment of bladder wall thickness, unlike IPP, has relatively weak correlation with UDS-based diagnosis of blockage, although it may still be helpful as an adjuvant measure in the clinical staging of BPH when combined with IPP [18]. Hematuria is a sign of BPH that can manifest itself more commonly than prostate cancer does. BPH may first manifest as acute urine retention [19]. BPH is expected to worsen as the proportion of adults over 60 increases, which will have a negative impact on men's health [20].

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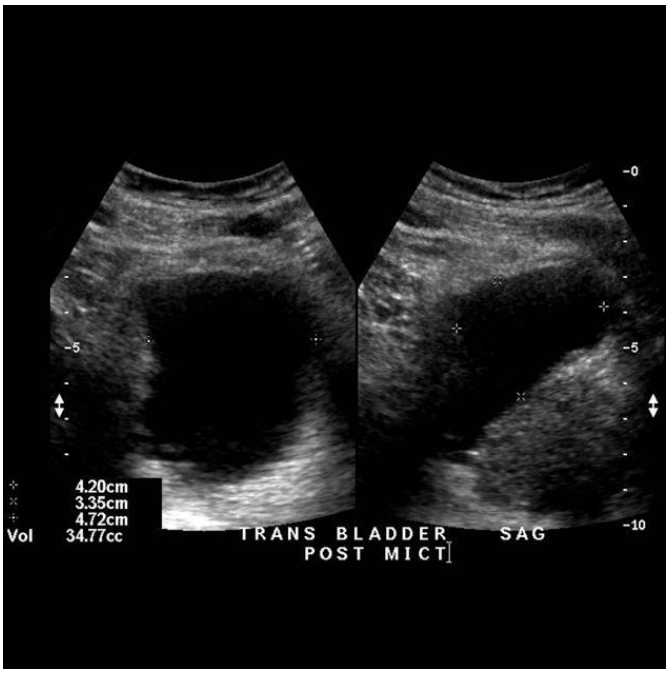

Figure 1: BPH resulting in a high post micturition

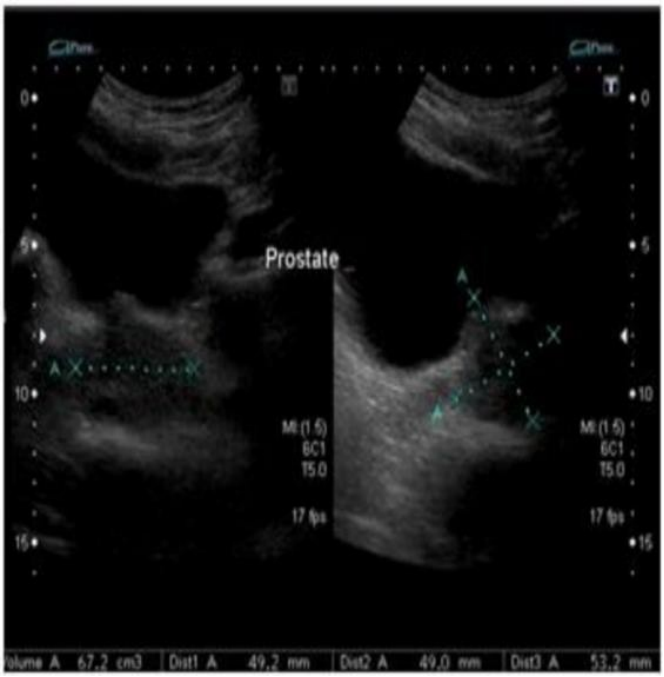

Figure 2: A BPH in a middle age patient

Notice: Volume with bladder wall diverticula. There is no irregularity in prostate capsule

CONCLUSIONS

Ultrasound is a modality of choice for evaluating the patient with BPH, it helps in diagnosis as well as prediction of urinary retention and age has a significant factor in BPH.

Authors Contribution

Conceptualization: MAR
Writing-review and editing: MAR, AS, LA, HS, RP
All authors have read and agreed to the published version of the manuscript.

Conflicts of Interest

The authors declare no conflict of interest.

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