

Role of Clinical Examination (Bulbocavernosus Reflex, Anal Tone Assessment and Perianal Sensation) and Uroflowmetry Studies in Evaluating Post-Operative Prognosis in Patients of Benign Prostatic Hyperplasia

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Abstract

Aims and Objectives: Benign prostatic hyperplasia (BPH) is a very common problem of older age group leading to the lower urinary tract symptoms (LUTS). It is difficult to differentiate whether the LUTS are due to bladder outlet obstruction or detrusor underactivity without urodynamic study which is not always possible. Hence, surgery may or may not improve the voiding efficiency. This study aims to evaluate the role of Bulbocavernosus Reflex, Anal Tone Assessment, Perianal Sensation, and Uroflowmetry studies in evaluating the prognosis after surgical treatment in patients of BPH.

Materials and Methods: Cases of BPH operated in the Department of General Surgery, MGM Medical College, Indore, were included in the study. Pre- and post-operative reflexes and uroflowmetry parameters were recorded. Improvement in LUTS was determined.

Results: A total of 400 patients were included with study period of 1.5 years. Follow-up period was 6 months. Out of these, 352 patients had good pre-operative reflexes and 48 patients had weak/absent reflexes. All the patients had poor uroflowmetry parameters. Out of 352 patients having good reflexes and normal anal tone, 336 patients (95.45%) showed good improvement in the uroflowmetry parameters and voiding efficiency after surgery. Out of 48 patients with absent reflexes or decreased anal tone, 46 patients (95.83%) showed no improvement in the uroflowmetry parameters and LUTS still persisted among them.

Conclusion: Patients with good reflexes, that is, intact S2, S3, and S4 showed improvement after surgery and those with absent reflexes, that is, the patients with pre-operative detrusor underactivity did not show improvement in their symptoms even after surgical intervention. Uroflowmetry alone is not reliable in predicting the post-operative prognosis in patients of BPH.

Key words: Anal tone assessment, Perianal sensation, Benign prostatic hyperplasia, Bladder outlet obstruction, Bulbocavernosus reflex, Detrusor underactivity, Lower urinary tract symptoms

INTRODUCTION

Benign prostatic hyperplasia (BPH) is a very common condition affecting men in older age group. It is one of the

most common causes of the lower urinary tract symptoms (LUTS). It may or may not be associated with bladder outlet obstruction (BOO). BPH is benign enlargement of the prostate gland that may lead to symptoms in men termed as LUTS. This condition affects the quality of life (QOL) significantly in many patients.^[1] Histologically, there is proliferation of smooth muscle and epithelial cells within the prostatic transition zone to variable degrees.^[2,3] The pathological process in BPH is hyperplasia (and not hypertrophy) which affects both the stromal and glandular elements of this gland.

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The exact etiology is unknown; however, BPH may result from a reinitiation of embryonic induction processes in adulthood.

Several theories^[4] have been proposed. These include:

1. Age-related tissue changes
2. Hormonal alterations – The presence of androgens is needed for the pathogenesis
3. Metabolic syndrome - There is association between metabolic syndrome and the development of BPH
4. Inflammation – It may be due to an inflammatory-based disorder.

LUTS can be due to two reasons:

1. Direct BOO from enlarged tissue (static component)
2. Increase in the smooth muscle tone and resistance within the enlarged gland (dynamic component).

Detrusor over activity leads to the storage symptoms seen in LUTS.^[5]

In men who developed BPH, acute retention of urine is a severe symptom. It is defined as a sudden and painful inability to void voluntarily.^[6,7] BPH is the most common cause of urinary retention.

MATERIALS AND METHODS

Four hundred cases of BPH operated in the Department of General Surgery, MGM Medical College, Indore, were included from the study. Pre- and post-operative reflexes and uroflowmetry parameters were recorded. Improvement in the LUTS was determined. All patients which were included in study had some degree of LUTS. A cautious physical examination digital rectal examination (DRE) and some urological investigations were done for the diagnosis of BPH in each patient. Patients also got an uroflowmetry done. Clinical reflexes (Bulbocavernosus reflex, anal tone assessment, and perianal sensation) were also checked. Patients undergone transurethral resection of the prostate or open prostatectomy depending on various factors.

Post-operative irrigation continued through triway Foley’s catheter for sometime until bleeding stopped. Traction was released after few hours. Foley’s removal done after 2–3 days and patient observed for urinary retention post Foley’s removal. Patient was asked for persistence of any LUTS. Patient was then discharged and advised for follow-up after 1 month. On follow-up, the reflexes were checked again and uroflowmetry got done. These findings were compared with the pre-operative findings. Patient was asked for persistence of any LUTS again to

see the relationship amongst the pre- and post-operative clinical reflexes, uroflowmetry findings, and any symptoms post-surgery.

RESULTS

Table 1 shows the distribution of patients according to post-operative symptoms in different groups (patients having good reflex and patients having weak/absent reflex preoperatively).

Out of total 352 patients having good reflexes preoperatively, 336 (95.45%) patients showed improvement in their symptoms and 16 (4.55%) patients had persistence of symptoms after surgery.

Out of total 48 patients having weak/absent reflexes pre operatively, two (4.17%) patients showed improvement in their symptoms and 46 (95.83%) patients had persistence of symptoms after surgery.

Table 2 shows the distribution of patients according to clinical reflexes in different age groups pre operatively (patients having good reflex and patients having weak/absent reflex).

Table 3 shows the distribution of patients according to post-operative symptoms in different age groups in patients having good pre-operative clinical reflexes.

Table 4 shows the distribution of patients according to post-operative symptoms in different age groups in patients having weak/absent pre-operative clinical reflexes.

Table 1: Distribution of patients according to post - operative symptoms in different groups (Pre - operative good clinical reflex group & weak/absent clinical reflex group)

| Reflex (Pre-op) Symptoms persist | Symptoms (%) | | Total (%) |
|-------------------------------------|------------------|-------------------|----------------|
| | Symptoms persist | Symptoms relieved | |
| Weak/Absent Count | 46 (95.83) | 02 (4.17) | 48 (100) |
| Good Count | 16 (4.55) | 336 (95.45) | 352 (100) |
| Pearson Chi-square | 268.758 | P-value | <0.0001 (Sig.) |

Table 2: Distribution of patients according to pre - operative clinical reflexes in different age groups

| Age Group | Reflexes (%) | | Total (%) |
|---------------------|-------------------|-------------|-----------|
| | Good | Weak/Absent | |
| 40–60 years (n=151) | Count 134 (88.74) | 17 (11.26) | 151 (100) |
| 61–80 years (n=246) | Count 216 (87.80) | 30 (12.20) | 246 (100) |
| >80 years (n=3) | Count 02 (66.67) | 01 (33.33) | 03 (100) |

Table 3: Distribution of patients according to post - operative symptoms in different age groups in patients having good pre - operative clinical reflexes

| Age | Good reflex (%) | | Total (%) |
|-------------|------------------|-------------------|-----------|
| | Symptoms persist | Symptoms relieved | |
| 40–60 years | 05 (3.73) | 129 (96.27) | 134 (100) |
| 61–80 years | 10 (4.63) | 206 (95.37) | 216 (100) |
| >80 years | 01 (50) | 10 (50) | 02 (100) |
| Total | 16 (4.55) | 336 (95.45) | 352 (100) |

P=0.007

Table 4: Distribution of patients according to post - operative symptoms in different age groups in patients having weak/absent pre - operative clinical reflexes

| Age | Weak/Absent reflex (%) | | Total (%) |
|-------------|------------------------|-------------------|-----------|
| | Symptoms persist | Symptoms relieved | |
| 40–60 years | 16 (94.12) | 01 (5.88) | 17 (100) |
| 61–80 years | 29 (96.67) | 01 (3.33) | 30 (100) |
| >80 years | 01 (100) | 00 (0) | 01 (100) |
| Total | 46 (95.83) | 02 (4.17) | 48 (100) |

P=0.89

DISCUSSION

One hundred and fifty-one (37.8%) patients were in the age group 40–60 years, 246 (61.5%) patients were in the age group 61–80 years, and three (0.8%) patients were in the age group >80 years. Majority of the patients were in the age group of 61–80 years.

Wu *et al.*^[8] in their study reported a median age of 74.4 ± 10 years. Three hundred and fifty-two (88.0%) patients were having good clinical reflexes preoperatively and 48 patients (12.0%) were having weak/absent reflexes.

Wu *et al.* in their study reported that patients with successful outcome had a higher baseline detrusor pressure (*P* = .029), that is, good clinical reflexes and greater maximum flow rate (*P* = 0.034) than the non-recovery group.

Kuo *et al.*^[9] reported that urodynamically obstructive BPH proven by a high voiding pressure and constrictive flow pattern predict a satisfactory outcome. The unfavorable factors always come from a small adenoma, uncertain irritative symptoms, and detrusor underactivity.

Rademakers *et al.*^[10] reported that patients with detrusor underactivity have an unfavorable outcome after prostatic surgery and do not have better long-term results than untreated detrusor underactivity patients.

Out of total 400 patients in study, there was persistence of symptoms in 62 (15.5%) patients postoperatively and in 338 (84.5%) patients symptoms were relieved after surgery.

Out of 352 patients having good reflexes preoperatively, 336 (95.45%) patients showed improvement in their symptoms and 16 (4.54%) patients had persistence of symptoms after surgery.

Out of 134 patients in 40–60 years age group having good reflexes preoperatively, 129 (96.27%) patients showed improvement in their symptoms and 5 (3.73%) patients had persistence of symptoms after surgery. Similarly, out of 216 patients in 60–80 years age group having good reflexes preoperatively, 206 (95.37%) patients showed improvement in their symptoms and ten (4.63%) patients had persistence of symptoms after surgery. Similarly, out of two patients in >80 years age group having good reflexes preoperatively, one (50%) patient showed improvement in his symptoms and one (50%) patient had persistence of symptoms after surgery.

Out of total 48 patients having weak/absent reflexes preoperatively, two (4.16%) patients showed improvement in their symptoms and 46 (95.83%) patients had persistence of symptoms after surgery.

Out of 17 patients in 40–60 years age group having weak/absent reflexes preoperatively, one (5.88%) patient showed improvement in his symptoms and 16 (94.12%) patients had persistence of symptoms after surgery. Similarly, out of 30 patients in 60–80 years age group having weak/absent reflexes preoperatively, one (3.33%) patient showed improvement in his symptoms and 29 (96.67%) patients had persistence of symptoms after surgery. Similarly, out of one patient in >80 years age group having weak/absent reflexes preoperatively, and one (100%) patient showed persistence of symptoms after surgery.

There was significant improvement in uroflowmetry parameters in 352 patients who were having good clinical reflexes preoperatively and no significant improvement in uroflowmetry parameters in 48 patients who were having weak/absent clinical reflexes preoperatively.

Wu *et al.* reported that patients with DU and small TPV might also benefit from prostatic surgery if they had a higher detrusor pressure which is reflected by good clinical reflexes and maximum flow rate at baseline.

Rademakers *et al.* reported in their study that careful assessment of voiding dysfunction to discriminate between detrusor under activity and BOO should be done with pressure-flow studies, can avoid unsuccessful prostate surgery and helps in counseling patients.

Andrade *et al.*^[11] in a study showed that a urodynamic study revealed a hyposensitive bladder (first sensation at 450 ml), normal compliance (35 mL/cm H₂O), and absent voluntary detrusor contraction. The remainder of the workup was unremarkable. Patient was started an alpha blocker (tamsulosin) and intermittent catheterization, every 4 h, preceded by a voiding attempt and no surgery was done. After a few weeks, he was able to void by schedule with negligible residual volumes.

CONCLUSION

For the management of BPH, we had analyzed the role of clinical examination and uroflowmetry studies. Pre-operative and post-operative clinical reflexes were checked and uroflowmetry done. The results obtained from the study show that there was a significant improvement in the LUTS after surgery in patients whose clinical reflexes were good preoperatively, that is, intact S2, S3, and S4 and also there was improvement in uroflowmetry study parameters. There was no significant improvement in the LUTS after surgery in patients whose clinical reflexes were weak/absent pre operatively and also there was no improvement in uroflowmetry study parameters.

These clinical reflexes give an idea about detrusor activity. Patients with weak/absent reflexes give an idea about detrusor underactivity which may be due to various underlying neurological conditions.

Majority of the patients who are having weak/absent clinical reflexes do not improve even after surgery since they have underlying detrusor underactivity.

This study concludes that there is no benefit of surgery in patients having weak/absent clinical reflexes preoperatively, that is, in patients having detrusor underactivity.

Uroflowmetry alone is not reliable in predicting the post-operative prognosis in patients of BPH. Furthermore, not all the patients having pre-operative poor uroflowmetry parameters will improve after surgery. The improvement depends on the pre-operative clinical reflexes.

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