

# Renal Calculi and LBA

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**Abstract:** *Low back ache subjects can have other than musculoskeletal disorders as primary source of pain. Knowledge and translation of it in practice by physiotherapists are paramount. As low back pain is associated with various systemic illness, metastases, infection of lower abdominal organs, kidney stone, prompt referral to concerned medical professional is vital. These are discussed with case study as evidence. As clinicians this research strives for independent health practice by physiotherapists*

**Keywords:** Renal Calculi, UTI \_ Urinary Tract Infection, TENS – Transcutaneous Electrical Stimulation, QOL – Quality of Life, Lithotripsy

## 1. Introduction

Low back pain may be related to various non-mechanical causes being the most common clinical condition physiotherapists are involved knowledge of other clinical conditions which can involve low back ache along with other causes such as urolithiasis (renal calculi) among adults with sedentary life style, lack of fluid intake, mineral content of water, high calorie diet, physical inactivity may complain of low back pain and acute abdominal or groin region but only difference where their complaints normally are high below the rib cage.

Manual therapists should be careful to rule out non mechanical low back ache. Also conservative physiotherapist should re-evaluate pain behavior after a course of electro therapy and exercises. Chronic recurrent pain with history of difficulty phase during urination, the subject be referred to a physician for further diagnosis and management.

5.3% of mechanical back pain are from non-musculoskeletal origin (Christensen et al 2010). An increased prevalence of stones with an improved diagnostic abilities, longer life spans, changes in health related behaviours, environmental changes, diuretic utilization. By 70 years 11% of men and 5.6% women will have symptomatic kidney stone (Parry et al 1975, Stametelon et al 2003).

Risk factors include polycystic kidney disease, metabolic syndromes (Sakherel et al 2012), life style and dietary factors such as low urine volume, abnormal body weight, sedentary activity and stressful life events may increase an individual's risk for calculus development (Meschi et al 2011).

### a) Kidney Stone and Low Back Ache

Kidney pain can occur on one or both sides of the back just below the rib cage. Causes of kidney pain includes UTI (Urinary Tract Infection), kidney stones, blunt force trauma to kidneys. Whereas back pain can affect the entire back (Portis et al 2001). As kidney and back pain can be difficult to distinguish as kidney pain is deeper and higher, whereas back pain can be in the lower back. Lower left back pain

can be pancreatitis, colitis, fibroids, endometriosis, kidney infection and stone (Alegin 2018).

### b) Treatment:

- Renal calculi between 5-10mm will pass either their own or require interventions. Such as lithotripsy (Wiesenthal et al 2011).
- Percutaneous nephrolithotomy may be utilized that are >20mm (Samplaski et al 2009).
- Alkalization is selected to dissolve calculi composed of uric acid (Aseenti et al 2010).
- While 26% with calculi recur symptomatically and 28% may be asymptomatic (Trincchini et al 1999) in a 10 year period.
- In significant pain, opioids, NSAID are effective options (Worcester et al 2010).

### c) Treatments with Physiotherapy:

- Mechanical pain may be relieved with manual therapy temporarily, however the underlying visceral pain is usually persistent unless identified and further managed (Wolcott et al 2010).
- Moral et al 2006 have in a RCT recorded TENS to be beneficial in acute renal calculi episodes for decreasing pain, anxiety, nausea and heart rate.

## 2. Aims and Objectives

Aims and objectives of this research were to

- 1) Analyse subjects with low back pain and kidney stone
- 2) To observe need for clinical reference for independent physiotherapy practice

**Review and Purpose of this Research Presentation Using a Case Study as Below:**

## 3. Materials and Methodology

26 year old endomorph, with sedentary life style involving 10 hours together in continuous seated nature of occupation complains of low back ache with posterior radicular symptoms

**On Examination:**

- His relevant details- BMI - 35kg/m<sup>2</sup>
- Waist circumference- 125 cm
- Obliterated lumbar lordosis
- Bilateral hamstring tightness
- Poor exercise tolerance
- Tender lumbosacral junction
- Ambulant un-aided with occasional LBA getting severe limitation in his daily activities.

He was treated with hamstring stretching and lumbar stabilization exercises of weekly twice frequency with moderate pain reduction and continued his daily routines for 3 weeks in May 2019.

**Results and Clinical Prognosis**

With an acute exacerbation of his low back ache in July 2019 further investigation revealed urolithiasis, which was later relieved by due surgical intervention. Following this with life style modification of regular walking and exercises, weight reduction, increased water intake, reduction in stress levels, the subject has an improved QOL till date.

**4. Discussion**

Chung et al 2013 have in a patient with acute right flank, lower quadrant pain was diagnosed with obstructing ureteric calculus and hence these situations may progress to hydronephrosis and kidney failure.

Urolithiasis refers to renal or ureteral calculi, with acute abdominal, low back, flank or groin pain, physiotherapists, manual therapists and physician should be more familiar with these scenarios (Hall et al 2009).

Non-mechanical origin of low back pain clinician should have wider spectrum of knowledge. Visceral pain, of renal, obstetric, prostate, bone mineral diseases, systemic causes should be relevantly considered based on history, complaints, physical evaluation, pain intensity and other related pain behavior.

This research subject and obese, sedentary, occupation and life style with less fluid intake, long hours of continuous sitting has complained of low back ache with hamstring tightness in 3 weeks of twice a week physiotherapy regime with hamstring stretching and core strengthening (7 sessions) has shown significant result clinically and functionally in May 2019 was advised to continue exercise and life style modifications.

In July 2019 as the subject develops an acute exacerbation of LBA with difficulty in urination on investigations was found to have renal calculi, was operated for the same and has no complaints of low back ache since then.

Prevention in life style modification and self-care reduce the risk of occurrence, increasing daily fluid intake more than 2 liters reduce the recurrence of stone formation (Borghi et al 1996).

**Critical Research Questions Arising Here:**

- 1) Is there a role for physiotherapist among subjects with renal calculi
- 2) Why should physiotherapist should know on renal calculi related details?

There is no direct role for physiotherapists for urolithiasis but weight reduction, life style changes, where physical activity can play facilitating role. As recurrence were recorded as supported by (Trinchey et al 1999) contradicting to the above statement of the direct role for physiotherapists among renal calculi subjects one RCT by Moral et al 2006 have found TENS to be effective during acute episodes of renal calculi to decrease pain.

Manual therapy and deep heat modalities such as short wave diathermy and ultra sound therapy among subjects with non-mechanical low back ache were not researched and evidenced.

Hence, familiarity and aware of associated clinical symptoms and prognosis of renal calculi is more important as the direct role of physiotherapy in these situation are not there; as the scope of physiotherapy is limited among renal calculi subject with low back ache proper medical reference can maximize patients benefit and substantiate physiotherapists role as first contact health care expert with quality.

**Limitations of this research** was only kidney stone was discussed in a subject with low back ache.

**5. Conclusion**

Low back a common musculoskeletal (MSD) ailment where the role of physiotherapist as a first contact health care expert, should be familiar with non-musculoskeletal origin of low back ache including pancreatitis, prostate cancer, kidney stones to name a few.

With detail history taking, due evaluation of red flags, obtaining physicians guidance, physiotherapist can play a well-informed professional in the care of various musculoskeletal ailments.

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