

## Inguinal hernia in a Continuous Ambulatory Peritoneal Dialysis Patient Practising “Kapal Bhati” therapy

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### ABSTRACT

A 72 years elderly man, diagnosed case of end stage renal disease with hypertension stage II and anemia of chronic disease on continuous ambulatory peritoneal dialysis along with the supportive medicines and yoga therapy mainly Kapal Bhati, presented with slowly increasing swelling in left inguinal region for two months which used to subside in supine position and bulge during coughing, later involved ipsilateral side of scrotum also. Then he was diagnosed having left side direct inguinal hernia. And then switched to hemodialysis followed by hernioplasty. CAPD was started again after two weeks. Though inguinal hernia is common in elderly male with predisposing factors but its development has not been reported in association with Kapal Bhati therapy which has become recently popular therapy for many diseases.

**Keywords:** Continuous ambulatory peritoneal dialysis; inguinal hernia; Kapal Bhati.

### INTRODUCTION

Inguinal hernia is the commonest external abdominal hernia, affecting 5% of the population and more in elderly male.<sup>1</sup> Various risk factors, such as raised intra-abdominal pressure, a powerful muscular effort-whooping/chronic cough, straining during micturition/defaecation, obesity, peritoneal dialysis, even intra-abdominal malignancy or fluid, smokers, has been reported for causing development of hernia.<sup>2</sup> We have reported case of development of inguinal hernia in patient with chronic renal failure on continuous ambulatory peritoneal dialysis (CAPD) practicing yoga Kapal Bhati which is a breathing exercise, claimed to be effective for curing many diseases but at the same time, it also increases intra abdominal pressure.

### CASE REPORT

A 72 years elderly man, occasional alcoholic and ex-smoker, businessman, resident of Dhankutta, a diagnosed case of end stage renal disease (ESRD) on CAPD for four months, presented in nephrology clinic of B.P. Koirala Institute of Health Sciences(BPKIHS),

Dharan, Nepal on 30<sup>th</sup> Nov 2009 with chief complaint of increasing swelling in left inguinal region for 2 months. On exploring detail history, he was diagnosed having left side nephrolithiasis 45 years back and he had undergone open nephrolithotomy three times But he had persistent residual calculus for which he had to under go fourth operation. The last operation was done in 2003. All the incision for these operations had healed without any complication.

One year back, he was diagnosed having hypertension and proteinuric nephropathy with increasing serum creatinine. He was put on conservative management. However, he progressively developed uremia as manifested by gradual loss of appetite followed by weight loss and persistent nausea and vomiting. He was diagnosed to have of chronic kidney disease stage-5/ESRD with hypertension of stage II, anemia of chronic disease with uremic symptoms. He was advised for renal replacement therapy (RRT) along with supportive medical therapy

However, instead of medical therapy he went to Yoga Center in Kathmandu where he was advised to do regular

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yoga mainly Kapal Bhati for at least 10 minutes 2-3 times daily along with Anulom Vilom and other pranayamas and several ayurvedic medicines and assured for complete recovery within few months.

Even after one month of intensive yoga therapy (Kapal Bhati and ayurvedic medicines), his general condition and uremic symptoms gradually increased. This time he opted for Renal Replacement Therapy. After explaining all possible modalities of RRT, he opted for CAPD as he was from long distance away from BPKIHS and was initiated with 3 exchanges/day, 2 liters/exchange with glucose based solution. He did not have history of chronic cough, symptomatic cardiovascular disease or any hernias.

However, he continued practicing Kapal Bhati. After two months, he started feeling discomfort in left inguinal region and then noticed a small swelling in same area which used to subside in supine position and used to bulge during coughing. The swelling gradually increased in size and involved ipsilateral side of scrotum also. Then he was diagnosed to have left side direct inguinal hernia and CAPD was stopped and switched to hemodialysis therapy. His hernia was repaired. After two weeks of hemodialysis, he was shifted to CAPD again and is doing well since then. He stopped practicing Kapal Bhati.

## DISCUSSION

An inguinal hernia is a protrusion of abdominal-cavity contents through the inguinal canal.<sup>2,3</sup> It is the commonest external abdominal hernia, though true incidence is not known. It is estimated that 5% of the population develops an abdominal wall hernia but prevalence may be higher.<sup>1</sup> They are very common (lifetime risk 27% for men, 3% for women) and their repair is one of the most frequently performed surgical operations.<sup>3</sup> Approximately 75% of all hernia occurs in inguinal region and two third of these are indirect and the remainder are direct.<sup>4</sup> Men are 25 times more likely to have a groin hernia than women. Prevalence of inguinal hernia increases with age. Abdominal wall hernias occur only at the sites where the aponeurosis and fascia are not covered by striated muscle. These sites are most commonly includes inguinal region.<sup>1</sup>

Inguinal hernia may be congenital yet they may not become evident with pain or as a bulge until later in life or acquired as a result of chronic pressure, repetitive strain, or an injury to the muscles of the addominal wall.<sup>2</sup>

An indirect hernia follows the pathway that the testicles made during fetal development, descending from the abdomen into the scrotum. Abdominal viscera leave

the abdomen through the inguinal ring and follow the spermatic cord (in males) or round ligament (in females); they emerge at the external ring and extend down the inguinal canal, commonly into the scrotum or labia. This pathway normally closes before birth but may remain a possible site for a hernia in later life. It may occur at any age. It results from weakness in the fascial margin of the internal inguinal ring.<sup>4,6</sup>

The direct inguinal hernia occurs slightly to the inside of the site of the indirect hernia, in a site where the abdominal wall is naturally slightly thinner. Unlike the indirect hernia, which can occur at any age, the direct hernia tends to occur in the middle-aged and elderly because their abdominal walls weaken as they age. It develops as the result of a weakness, tear, gap or opening in the muscle wall of the lower abdomen or groin at a region called the inguinal canal. As a result of this opening in the muscle, the contents of the abdomen, such as intestine, may protrude through the muscle creating localized pain and/or a bulge. Instead of entering the canal through the internal ring, the hernia passes through the posterior inguinal wall, protrudes directly through the transverse fascia of the canal (in an area known as Hesselbach’s triangle), and comes out at the external ring. They are caused by connective tissue degeneration of the abdominal muscles, which causes weakening of the muscles during the adult years. They occur only in males. A direct hernia develops gradually because of continuous stress on the muscles.<sup>7</sup>

Any condition that increases the pressure of the abdominal cavity may contribute to the formation or worsening of a hernia such as a powerful muscular effort-whooping cough, chronic cough, straining micturition or defecation, obesity, peritoneal dialysis, even intra abdominal malignancy, may produce hernia. Hernia is more common in smokers, which may be result of an acquired collagen deficiency increasing individual susceptibility to the development of hernia.<sup>2</sup>

Though inguinal hernia is a known complication of long term CAPD as it also increases the intra-abdominal pressure but exact attributable or relative risk has not been estimated. Chronic renal failure and initiation of dialysis therapy itself can cause myopathy and generalized weakness and malnutrition but does not predispose for hernia development unless patient develops ascites due to end stage renal disease.<sup>8,9</sup>

Since last few decade, Yoga Kapal Bhati has been popularized for many conditions, is a breathing exercises involving taking short breaths and exhaling forcefully and stomach is also made to move in tandem with the breathing pattern. Kapal Bhati refers to that exercise which is supposed to make the forehead luminous and

lustrous. While doing Kapal Bhati, it is thought that while exhaling, it is thrown out all the diseases out of body. But more important in the process is the particular movement of the abdominal muscles. This movement is the soul of the process. Few claimed benefits are: diseases related to Kapha like asthma, respiratory troubles, allergies, sinus, etc. are cured; diseases of heart, lungs and brain, obesity, diabetes, flatulence, constipation, acidity and diseases pertaining to kidneys and prostate glands etc. are cured.<sup>10</sup>

This exercise not only improves breathing, but is also a good abdominal and chest workout but at the same time, it also increases episodic intra-abdominal pressure and can produce tear, gap or opening in the muscle of the floor of inguinal canal leading to formation or precipitation of abdominal hernia.

### CONCLUSIONS

Adverse effect specially increased abdominal pressure in patients undergoing CAPD should be explained to every CAPD patients and patients should be made aware of possible complications such as abdominal hernia, while doing Pranayama like Kapal Bhati. So CAPD patients should be advised not to practice this kind of alternative medicine that may increase abdominal pressure in patients on CAPD therapy.

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