Original Research Article

Indian Journal of Obstetrics and Gynecology
Volume 8 Number 2, April – June 2020
DOI: http://dx.doi.org/10.21088/ijog.2321.1636.8220.9

A Study on Role of Percutaneous Nephrostomy in Advanced Cervical Carcinoma with Obstructive Uropathy

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How to cite this article:
Naveen H.N, Shaik Hussain Saheb. A Study on Role of Percutaneous Nephrostomy in Advanced Cervical Carcinoma with Obstructive Uropathy. Indian J Obstet Gynecol. 2020;8(2):52–56.

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Received on 02.04.2020; **Accepted on** 30.06.2020

Abstract

Background: Obstructive uropathy is a recognized complication in advanced cervical cancer. Urinary diversion is commonly used to bypass the obstruction and improve renal function. The degree of survival benefit that diversion offers is not well established and its impact on Quality of life (QoL) is uncertain. This study considered these factors in order to inform treatment decisions. Over 70% of the carcinoma cervix cases present in advanced stages of the disease and are associated with poor prognosis and high mortality rates. we evaluated our experiences with PCN in the management of cervical cancer patients presenting with obstructive uropathy with a detailed analysis of outcome, morbidity, mortality and survival rates and quality of life.

Materials and Methods: A prospective study was performed with 52 patients with carcinoma cervix stage 111 and IV who underwent percutaneous nephrostomy during a 12 month period. The median age was 45 years. Follow up period was ranging from 3 months to 20 months. Quality of life was measured by web based QualityMetric's SF12v2 Health Survey.

Results: Of the 52 patients under assessment, significant improvement occurred in 40 patients (76.9%) and 40 patients (76.9%) presented normalization of their BUN and creatinine levels within 3 weeks Postoperative complications occurred in 28.46 of the patients. Mean survival at 6 and 12 months was, respectively, 48.07% and 23.07%. 4 patients developed VVF fistulas. Post procedure 15 patients 28.84% received palliative radiotherapy. There was considerable improvement in physical and emotional well being of the patients in 1st week,fourth week, and third month web based Quality Metric's SF-12v2 Health Survey.

Conclusion: In the present study we have concluded that the presence of malignant ureteric obstruction, palliative percutaneous urinary diversion may be performed and is effective in improving renal function. Urinary diversion by percutaneous nephrostomy will definitely provide considerable physical and emotional wellbeing of the patient.

Keywords: Cervical cancer; Obstructive uropathy; Percutaneous nephrostomy.

Introduction

Cervical cancer is a major health problem in most of the countries. It is the one of the major common malignancy in women, after breast cancer. It`s incidence in India is about 32 per 100,000 women. Despite recent advancements in surgical techniques, radiotherapy and chemotherapy for treatment of carcinoma cervix, they often progress with obstructive uropathy due to local spread or pelvic metastases.[1,2] These patients receive cisplatin-based chemotherapy in combination with radiotherapy as definitive treatment and have a high risk of developing progressive disease during follow up. Clinical options for residual or recurrent disease are limited. Currently, there is no established treatment

for refractory cervical cancer. Chemotherapy in this setting yields a limited success rate and is very toxic.[3,4,5] If the obstruction in the urinary tract is not removed, the patient's Clinical conditions will deteriorate at a fast pace through uremia, water-electrolyte abnormalities and urinary infections with a consequent reduction of alertness and subsequent death retrograde ureteral stenting is frequently impossible in cancer patients due to the presence of anatomic deformities, bleeding or ureteral compression. This procedure is safe and effective and suited for patients with obstructive uropathy, obtaining immediate improvement in the biochemical and laboratorial parameters of renal function, because of the improvement in materials used for the procedure.[6,7] Obstructive uropathy was also sometimes observed in previously treated patients who had no evidence of recurrent disease, but developed hydronephrosis due to entrapment of ureters in pelvic fibrosis. Patients may be symptomatic or asymptomatic with high Blood Urea Nitrogen (BUN), serum creatinine, and electrolytes.

The urinary diversion by percutaneous nephrostomy (PCN) is most used method. It is helpful in in improving kidney funcytion and also improvement in qulaity of life and enable the patient to accept tumor specific palliative treatment in most and curative treatment in some. Even though it is well develop techinique, there are some complications with significant morbidity. Though the urinary shunt can prolong these patient's lives, and may improve their quality of life, many ethical, philosophical and emotional questions have been raised, which make the indication of nephrostomy even more complex in patients with poor prognosis.[8,9] This study is conducted to assess the role of percutaneous nephrostomyin advanced cervical carcinoma with obstructive uropathy, a detailed analysis of outcome, morbidity, mortality, quality of life and survival rates.

Materials and Methods

In present study we have prospectively analyzed 52 patients with Carcinoma cervix stage 111 or IV, who were undergoing unilateral or bilateral percutaneous nephrostomy. The median age was 45 years, (30 to 60 years). All patients had high Blood Urea Nitrogen (BUN) and creatinine serum levels associated with bilateral hydronephrosis at the moment of nephrostomy.

The diagnosis of neoplasia was confirmed by biopsy in all patients. Ureteral obstruction and the obstruction degree were diagnosed through imaging exams, specifically ultrasonography or computerized tomography. All patients were referred from a Onco-centre. Twenty-eight patients (53.84%) had treatment for the primary neoplasia before in the form of surgery, radiotherapy or chemotherapy. Thirty six patients (69.23%) underwent hemodialysis before the surgical procedure due to acute pulmonary edema, hyperkalemia or uremic symptoms.

A percutaneous nephrostomy was performed under local anesthesia in all patients. Patients were positioned in the horizontal ventral decubitus and the selected renal unit was punctured under ultrasonographic control/C arm guidance with a 22-gauge needle. After observing the urinary reflux, a 50% iodinated water-soluble contrast medium was infused in order to delineate the renal calices. Under fluoroscopic guidance, a new infracostal puncture was performed with an 18-gauge needle at the posterior axillary line towards the lower or middle calices, and the pathway was dilated according to the Seldinger technique. Next, a 12 F or 14 F pig tail or cystocath catheter was inserted and positioned inside the renal pelvis, and secured to the skin tightly. Bilateral PCN was done in 32 cases and unilateral cases were done in 20 cases. Patients were maintained under antibiotic prophylaxis and the catheter was changed after 2 months. Patient follow-up ranged from 3 to 20 months, with a mean of 13 months. We assessed intraoperative mortality, quality oflife after PCN using SF12 score, the number of patients capable of receiving any kind ofcomplementary treatment for their neoplasias, postoperative complications and survival.

Quality of life was measured by web based QualityMetric's SF-12v2 Health Survey. It is a shorter version of the SF-36v2® Health Survey that uses just 12 questions to measure functional health and well-being from the patient's point of view. Taking only two to three minutes to complete, the SF-12v2 is a practical, reliable, and valid measure of physical and mental health. It was done before procedure, 1st week, 4th week and at third month.

Results

Out of the 52 patients under assessment, significant improvement occurred in 40 patients (76.9%) and 40 patients (76.9%) presented normalization of their BUN and creatinine levels within 4 weeks. No death during the hospitalization period. There was no case of mortality related to the surgical procedure. Among the patients who were discharged from

the hospital, 15 (28.46) had to be readmitted due to complications related to the surgical procedure (Table 1). Loss of the nephrostomy catheter/pericatheter leak was the most frequent postoperative complication and was treated with 3 of them requiring a new procedure and the other 5 patients treated by simply repositioning of the catheter. Three patients developed episodes of urinary tract infection which was managed conservatively. Mean survival at 6 and 12 months was, respectively, 48.07% and 23.07%. Vesicovaginal fistula was noted in 4 cases among which 2 had developed after radiationtherapy and 2 due to advanced carcinoma. Rectovagnalfistula was present in 2 cases. Post PCN procedure only 10 patients received hemodialysis for a week and rest of 42 patients were off the dialysis. When renal function test reached normal the 15 patients received palliative radiotherapy. Antegrade stenting was done in 2 of the cases after nephrostogram showed patent vesicoureteric junction. There was definite improvement in physical and emotional well being of the patient from pre procedure to post procedure scores (Table 2,3). In general, the health of patients in pre PCN period reported poor health and very less with fair and good health. After one week of post PCN patients shown improvement in health and after 4 weeks shown better improvement than first week. Moderate activities, such as combing, going to bathroom, having food and climbing several flights of stairs were limited in pre PCN but in post PCN patients shown overall betterment in post PCN after one week but after four week still betterment was seen. In pre PCN period physical heath interfered in regular activities and they were not able to complete accomplishments, but after 4 weeks of post PCN period patients were shown improvement in their activity accomplishment by improved physical health. In pre PCN period patients gets effected their regular activities by emotional problems. After four weeks of post PCN period they shown betterment in their regular activities which were affected by emotional problems in pre PCN period. During 4 week period of pre PCN pain was interfered in patient regular activities including professional and home. After post PCN period patients shown betterment in their professional and home activities. In pre PCN period most of the patients were felt difficulty in maintenance of calmness, energy in regular activities and felt depressed. Better improvement was seen in calmness, energy and depression in their regular and home activities. During the past 4 weeks of pre PCN period physical health or emotional problems interfered with social activities like visiting friends, relatives of patients. After 4 weeks of post PCN period patients shown betterment in social activities.

Table 1: Postoperative Complications.

Postoperative complication	Number (%)
Loss of catheter	04 (7.69)
Urinary tract infection	03 (5.79)
Pericatheter leak	06 (11.53)
Hematuria	03 (5.79)
Total	13 (30.7)

Table 2: Characteristics in relation to mortality and survival.

Survival rate	3 months (%)	6 month (%)	1 year (%)
Alive	44 (84.61)	28 (48.07)	12 (23.07)
Dead	8 (15.39)	24 (46.15)	40 (76.92)

Table 3: Post PCN treatment.

Postoperative complication	Number
Hemodialysis	10
Radiotherapy	15
Antegrade stenting	02
Retrograde stenting	02

Discussion

Obstructive nephropathy is a frequent complication in the course of advanced Cervical Cancer (CC), and ultrasonography-guided Percutaneous Neph-rostomy (PCN) is a well established technique for fast ureteral desobstruction. Cervical Cancer (CC) is one of the most common cancers in women, especially in developing countries, constituting a real public health problem. Prevention of CC is potentially effective, as there are various forms of intervention and combating the mul-tiple manifestations of the disease. However, despite the effectiveness of control programs in many centers, CC remains a disease with high prevalence, incidence and mortality.[10,11]

Goodwin et al. reported the first percutaneous puncture in 1955.[12] This procedure isusually relatively safe, simple and fast, and presents low morbidity and mortality rates. Before the advent of recent endourology techniques, patients with locally advanced or metastatic urogenital neoplasias underwent open nephrostomy and presented high morbidity and mortalityrates however with the advent of the percutaneous

nephrostomy, morbidity and mortality rateshave remained bit low. The procedure's main complications include urinary tract infections, obstruction and loss of the nephrostomy catheter Complication rates in our patients were 28% and hospitalization was often required. It raises doubts as to which patients would have longer survival and better quality of life after clearing the urinary tract. Relieving the ureteral obstruction allows the patient to undergo surgery, aggressive chemotherapy or radiotherapy for treating most cases of cervical cancer. However, the majority of advanced neoplasias whose progression is enough to cause ureteral obstruction, at least currently, are refractory to any therapeutic modality. In the future, advances in radiotherapy and chemotherapy can enable amore effective treatment for these neoplasias and strengthen the role of the percutaneous nephrostomy in these patients. The need for urgent hemodialysis before the percutaneous nephrostomy reduces the morbidity and enable the PCN procedure to be done under quite astable condition.[13] However, the main factor that should guide the urologist's management ispatient desire. Some patients may refuse the nephrostomy despite being good candidates. Others may wish to prolong life even for a short time due to emotional, legal or financial reasons, and this wish must be respected. However, patients and their families must be completely informed about the palliative role of surgery for removing the obstruction, the disease's prognosis andpotential complications of the procedure. Patients with uncontroled pain, low functional status, significant co-morbidities, and disseminated disease with no possibility of treatment are clearly unfavorable candidates for urinary clearing due to the poor quality of life experienced by such patients following the procedure. Most studies reported in literature are retrospective, small sample based and non randomized. Therefore, the role of PCN in management of obstructive uropathy in cervical cancers actually needs to be defined more accurately in terms of survival benefit or quality of life improvement in large sample based, randomized, prospective trials.[14] The morbidity of percutaneous nephrostomy is low. However, there was significant improvement in renal function parameters in the majority of patients, allowing them to be discharged from the hospital and stay at home for most of their remaining survival time. There was no procedure-related mortality; however, mortality due to progression of the neoplasia was considerable. Hence, PCN is safe and feasible and should be done in carefully selected cases. Ultimately, the wish of patient needs to be respected.

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