Case Report

Indwelling pleural drain for mobile management of malignant pleural effusion-combining benefits of both methods

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ABSTRACT

Malignant pleural effusion is a leading cause of morbidity in lung cancer patients requiring repeated pleural aspirations or persistent intercostal drainage tube. Using an indigenous method of putting icd tube of smaller size with subcutaneous tunneling would allow draining fluid from lungs easily and painlessly when needed and avoid the need for repeated injections and chest tube insertion every time the fluid is to be drained.

KEY WORDS: Indwelling catheter, intercostals drainage, malignant pleural effusion

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INTRODUCTION

The National Cancer Registry Programme of the Indian Council of Medical Research, which collected data from six different parts of the country, showed lung cancer as a leading cause of cancer in India.[1] Malignant pleural effusion due to its recurrent nature poses a unique problem of increased morbidity of patients. Medical thoracoscopy, a major modality for its treatment is not easily available and also a number of patients are not medically fit to undergo thoracoscopy. Using an indigenous way of deploying indwelling pleural intercostal drainage (icd) without permanent bag attachment will decrease morbidity associated with external icd *in situ* and avert the learning curve, expertise and cost required for indwelling pleural catheter, thereby providing the benefits of both methods. We hereby report a case of malignant pleural effusion managed with indwelling icd.

CASE REPORT

A 60-year-old female, laborer by occupation, a diagnosed case of carcinoma lung with metastasis presented with chief complaints of dyspnea. The patient had massive pleural effusion [Figure 1]. There had been five previous episodes of pleural aspiration followed by thoracocentesis. The patient was offered thoracoscopy and talc poudrage which the patient refused so an indwelling intercostal tube insertion was planned. In order not to hamper the motility a newer economical technique was employed on the lines of indwelling pleural catheter, which not only is very expensive but also not easily available in India.

After detailed informed consent, the site of icd insertion site was marked by ultrasonography in the mid axillary line. The skin was thoroughly cleaned with betadine and methylated spirit. A second point was marked 5 cm behind and above the first point and lignocaine 2% was given liberally at the point of icd insertion and subcutaneously in the line between these two points. Two subcutaneous nicks were given, the first 0.5 cm behind the point of icd insertion and the second at the second point behind and a subcutaneous tunnel was created by straight artery forceps between the two points. An 18 Fr rhemsons icd tube was taken and passed through the subcutaneous tunnel and pulled out with the artery forceps. A nick was given and the front end was inserted in the chest wall as a normal icd insertion. The rear end of the tube was cut and used as an air tight cap after reversing it [Figure 2]. One stitch was placed at icd site and the other at the second point [Figure 3]. The icd was bent and dressing applied in two layers with the upper layer in two parts so that whenever drainage was to be done [Figure 4], the patient removed the distal part of dressing above and connected

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to a bag [Figure 5] and sealed the tube with the cap after drainage of fluid. The patient was mobile without any need for carrying the icd bag with icd *in situ* [Figure 6] continuously and remained comfortable with the tube for 4 months till the end of life. During this period the patient was called for follow up every 15 days and sterile dressing was done. No complication was encountered during the above said period.

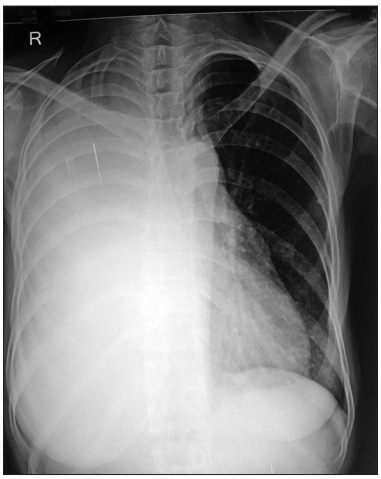

Figure 1: Chest radiograph pa view depicting massive pleural effusion

Figure 2: Intercostals drainage tube rear end being used as an airtight cap after reversing

Figure 3: Intercostal Drain (ICD) bag being filled for drainage of fluid

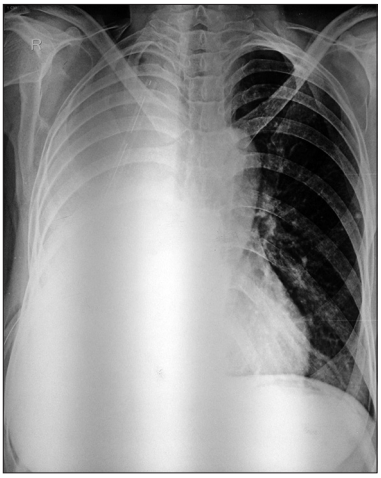

Figure 4: ICD *in situ*

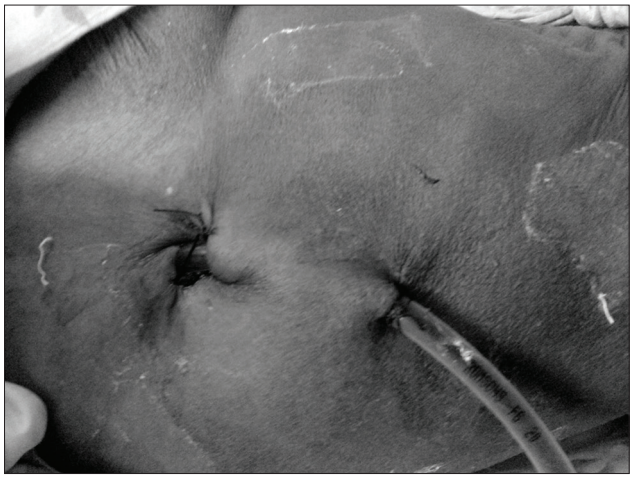

Figure 5: Site of stitches to hold ICD tube one at ICD site and other 5 cm behind second point

Figure 6: Dressing for indwelling drain

DISCUSSION

Pleurodesis has been the mainstay for management of malignant pleural effusions for decades, but it is associated with a number of problems.[2] The largest randomized trial in pleural disease (n = 486), 5 talc (poudrage or slurry) pleurodesis indicated that only about 75% of malignant pleural effusions patients at 1 month and around 50% by 6 months had significant fluid control.

Also, in a subset of patients with conditions like trapped lung in which the lung does not expand and hence pleural approximation cannot occur, pleurodesis is useless. Few trials have also shown that talc induces lung and systemic inflammation[3] and killed 2.3% of patients in a Cancer and Leukemia Group B study through talc-induced respiratory failure.[4] This acute lung injury can be decreased by using large particle size talc preparations,[5] such products are imported in India and one small vial costs around 5000 rupees and is not available in all the states. The shortcomings of pleurodesis in a selected set of patients can be overcome by introduction of indwelling pleural catheters which allow fluid evacuation from a single minimally invasive procedure. It is associated with minimal complication as pain; however, a systematic review including 1370 patients has confirmed that serious complications were uncommon (3%).[6] Various other studies have demonstrated safety records in patients undergoing chemotherapy[7] and local radiotherapy with indwelling pleural catheters *in situ* and found them to be quite safe.[8] Indwelling pleural catheters is generally accepted for treatment of malignant pleural effusions patients in whom pleurodesis has failed or is contraindicated (especially trapped lungs).[9] However, its use in India is limited by the fact of decreased availability and cost. The priority for most malignant pleural effusions patients are alleviation of dyspnea and optimization of quality of life (the principle end points for aforementioned European multicenter trials) while avoiding hospital admissions.

Therefore, in an Indian context the primary aim of malignant pleural effusions management is to improve dyspnea and quality of life, with minimal intervention and hospitalization at a less cost without compromising on the safety. Using a normal portex intercostals drainage tube which is easily available, highly economical, with pulmonologists already well versed with its use (and hence eliminates the need for learning curve for indwelling pleural catheter) and equally efficacious is the answer of choice to selected patients of malignant pleural effusions who are not fit for pleurodesis, want to remain mobile and social, want to decrease morbidity and cost and prefer home management instead of hospital admissions.

CONCLUSION

Indwelling portex icd offers a low cost, easily available and successful alternative to thoracoscopy and indwelling pleural catheter for persistent malignant pleural effusions in a selected subset of patients.

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