

## Ideas and Innovations

# Inflatable Indian travel pillow as a pneumatic patient jack

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## ABSTRACT

The Indian travel pillow readily available in the market has been utilized as a patient jack in the operation theatre. This has been used to raise the shoulders of an anaesthetized patient for surgery in the head and neck region and a set of two pillows have been used to prop-up a prone anaesthetized patient. This allows smooth positioning of the patient after intubation without disturbance to the airway with minimal manpower.

## KEY WORDS

Inflatable pillow, patient jack, patient position, pillow

## INTRODUCTION

Proper positioning of the patient on the operating table is an important prerequisite for all surgical procedures for the proper execution and ease of surgery. During endotracheal intubation the neck needs to be flexed while during surgery in the region of head and neck, extension of the neck is often required. Usually, this is achieved by inserting a pillow or a sand bag under the shoulders of the patient with the help of two or three persons after intubation. All this while the anesthetist anxiously holds on to the endotracheal tube to prevent displacement. Displacement of the tube is a major worry, particularly in children where the margin of safety is less, more so in cases of cleft lip and palate.

Similarly, after intubation for turning the patient into prone position, one has to lift the patient 10-12 inches off the table with the help of 2-3 strong assistants and then turn him/her prone on to a couple of bolsters. This is required as the lowest height of the operation table

is almost equal to the height of the patient-trolley.

## MATERIALS AND METHODS

The Indian travel pillow is a rectangular inflatable gadget, [Figure 1] which is different from the doughnut type pillow available elsewhere. This inflatable travel pillow has been used as patient jack to facilitate positioning of the patients in the above situations. In addition it is also a very useful gadget to extend the neck of a patient of post burns contracture of the neck, intraoperatively, immediately after release.

### Technique and clinical experience

The uninflated pillow is placed under the shoulder before anaesthetizing the patient. After intubation the pillow is inflated by pumping air so as to lift the patient's shoulder to achieve the required neck extension [Figure 2a]. The patient assumes the required position in a gentle, smooth and continuous movement, without compromising the integrity and placement of the



**Figure 1:** Photograph of the pillow with a disposable nozzle



**Figure 2:** (a) A child positioned for cleft lip repair. A deflated travel pillow is placed behind the shoulder. (b) Photograph of the same child after the pillow has been inflated, achieving adequate neck hyperextension

endotracheal tube. After surgery the pillow is deflated for ease of extubation.

For giving prone position, two uninflated pillows are placed on the table corresponding to the pelvis and the shoulder. After the patient is intubated on the trolley adjacent to the operating table, the patient is rolled over on to the table without lifting off the trolley. Thereafter, the pillows are inflated to lift the patient. [Figure 3a, b] After surgery the pillows are deflated before turning the patient supine for extubation.

While releasing a post burns contracture of the neck, an un-inflated pillow is placed under the shoulders of the patient before intubation. After the release of the contracture, the pillow is inflated and in a smooth movement the patient assumes the correct position with



**Figure 3:** (a) A pair of pneumatic pillows has been placed on the table, patient is placed prone over the pillows. (b) Both the pillows have been inflated so that the abdomen is free from the table

full extension of the neck, without causing any disturbance to the endotracheal tube or the drapes.

This device has been used in over 1000 patients in the past six years by most of the surgeons in 300-bed hospital where approximately 250 to 300 surgeries are performed every month. We are extremely happy with the positioning of the patient with the help of the inflatable travel pillows. In our experience, leakage of air can occur during the procedure and may lead to a change in position. This leakage usually occurs at the junction between the nozzle of the pillow and the connecting tube. We have never come across leakage of air through the seam of the pillow. Prior checking of the integrity of the pillow and the connections to the pump may prevent this complication.

After presentation in conferences and following personal communication, the second author has started using this travel pillow in his department regularly. The second author has used this patient jack in over 50 patients for elevation of shoulder for head and neck surgery and in 6 patients for prone position over a period of 3 months. The surgeons and the operation theatre personnel of his institute are very happy with this innovative use of the travel pillow. Originally the air was pumped with a pneumatic pump, but this takes little time. To hasten the process of inflation, the assistants prefer to blow with the mouth using a disposable nozzle. This is very effective and expedites the process of pumping the air.

## DISCUSSION

The travel pillow is a very simple and inexpensive device for positioning of the patient for head and neck surgery. This works on the principle of pneumatic jack. Intravenous infusion bag has been used for positioning of the children for venous access with a similar idea.<sup>[1]</sup> 'U' shaped travel pillow has been used for post-operative positioning after hair transplant surgery to avoid pain due to pressure.<sup>[2]</sup>

The use of travel pillow described by us is for an entirely different purpose. This pneumatic jack reduces the need for manual lifting of the patient and avoids the risk of accidental extubation while positioning. This jack makes the positioning of the patient, theatre-personnel friendly. On search of literature we found that Rao and Taylor in 1968 had written a short communication on a device for thyroid surgery, which works almost on a similar

principle. They had fabricated a mattress with a doughnut shaped head rest and an inflatable pillow for the trunk in single sheet. The pillow could be inflated for positioning of the patient.<sup>[3]</sup> Our innovation is very simple. The travel pillow is readily available in the market, no fabrication work is required, the seal of the pillow is quite dependable and it is inexpensive. It is a good addition to the armamentarium for positioning of the patient in an operation theatre.

## REFERENCES

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