

An Innovative Approach to the Positioning of Morbidly Obese Patients for Gynaecologic Surgery

Melissa Duignan^{1*}, Stanley Frye² and Ashlee Linn Smith¹

¹Geisinger Medical Center, 100 Academy Avenue, Danville PA, USA

²Maclaren Regional Medical Center, USA

Abstract

Proper patient positioning is becoming increasingly difficult as the national BMI continues to rise. Gynecologic surgery often requires patients to be in lithotomy position for adequate visualization and access, which can increase the risk of femoral nerve injury. Herein, we describe the first case of using Hoyer Lifts[®] intra-operatively for proper leg positioning of a morbidly obese patient. This is the first reported case using Hoyer Lifts[®] for positioning the lower extremities of a morbidly obese patient during gynecologic surgery. Using a lift for each leg, we were able to accommodate both lower extremities and prevent neurologic injury. Such lifts provide an additional approach to positioning extreme morbidly obese patients.

Keywords: Gynecologic surgery; Obese patients; Hoyer lift; Yello fin[®]; The yello fin elite[®]; Ultrafin[®]

Introduction

As the obesity epidemic impacting the US population continues, we are limited by our current methods of intra-operative positioning for gynecologic surgery. The correct positioning necessary to access the surgical field can be taxing on a patient's body, sometimes inflicting harm if not completed properly. For patient comfort, as well as maximizing visualization, padded stirrups have been implemented for use in gynecologic surgeries. However, there are limits as to how much weight the each stirrup can hold as well as the calf diameter they can accommodate. Below, we detail a case of a fifty two year old female for whom we used Hoyer Lifts[®] to accommodate her lower extremities for positioning during drainage of a vulvar abscess.

Case Description

A fifty two year old female, with multiple medical problems including chronic anemia, uncontrolled DM, morbid obesity with a BMI of 83, and hypertension was admitted to the Internal Medicine service with abdominal wall cellulitis. During her hospital stay, she was noted to have copious amounts of foul smelling vaginal/vulvar discharge. An examination was attempted at the bedside, however was inadequate secondary to the patient's body habitus. Additionally, no CT imaging was available as the patient exceeded the weight allowed for the CT scanner. The Gynecology Service was consulted and the patient was taken to the operating room for evaluation and treatment of her vaginal/vulvar drainage. Intra-operative positioning was limited, as the patient's lower extremities were too large to be placed in Yellow Fin[®] stirrups. Intra-operatively, we requested the assistance of our lift team. Two Hoyer Lifts[®] were then used to accommodate her lower extremities safely and provide adequate visualization. Once visualization was obtained, the vulvar abscess was identified and drained without complications (Figures 1 and 2).

Discussion

As we continue to experience the epidemic of obesity in the United States, safe and adequate patient positioning is restricted by the current products and devices available. In order to safely evaluate patients and manage cases in extremely morbid obese patients in the operating room, new methods need to be adapted and utilized.

The Hoyer Lift[®] is a tool most commonly used for elevating and transporting obese patients, as well as quadriplegics. They were

modelled after a floor crane originally used in automotive repair shops for lifting engines off of the ground. The lift was designed with adjustable legs that may lift when parallel and remain stable when spread apart [1]. These design attributes make it a reasonable tool for use in patient positioning during gynecologic surgery, especially in the morbidly obese population.

There are currently three types of stirrups most commonly used in operating rooms across the United States. These include the YelloFin[®], the YelloFin Elite[®], and the Ultrafin[®]. There are subtle differences in the maximum dimensions and capacities that each can accommodate. All three can accommodate an ankle width of up to 4 inches. The YelloFin[®] and the YelloFin Elite[®] can fit a calf width of up to 7.5 inches and have a non-flexible boot, while the Ultrafin[®] can accommodate a calf up to



Figures 1: Intra-operative images demonstrating utilization of Hoyer lifts[®] for both lower extremities to assist with intra-operative positioning.

***Corresponding author:** Melissa Duignan, Geisinger Medical Center, 100 Academy Avenue, Danville PA, USA, Tel: (570) 271-6211; E-mail: mduignan@geisinger.edu

Received August 28, 2014; **Accepted** September 15, 2014; **Published** September 23, 2014

Citation: Duignan M, Frye S, Smith AL (2014) An Innovative Approach to the Positioning of Morbidly Obese Patients for Gynaecologic Surgery. J Clin Case Rep 4: 417. doi:10.4172/2165-7920.1000417

Copyright: © 2014 Duignan M, et al. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.



Figures 2: Intra-operative images demonstrating utilization of Hoyer lifts® for both lower extremities to assist with intra-operative positioning.

13 inches wide with a flexible boot. The major difference, however, lies in the weight capacity. The YelloFin®, YelloFin Elite®, and Ultrafin® can hold a weight capacity of 350lbs, 500lbs, and 800lbs respectively [2].

There have been no documented cases of the Hoyer Lifts® used for positioning of patients lower extremities to facilitate gynecologic surgery in the morbidly obese population. Most of the literature currently available is directed at patient positioning and avoiding patient injury and neurologic injury. However, limited information is available about unique ways to position patients to allow for adequate visualization and for procedures to be completed properly.

Neurologic complications are inevitable sequelae of gynecologic surgery if patients are not positioned properly. They most often are transient and self-limited however they may lead to permanent, life altering neuropathies. The reported incidence of nerve injury leading to permanent motor impairment is 1 in 50,000 cases [3]. The most common inciting factor is injury to a portion of the lumbosacral nerve plexus secondary to improper patient positioning. The proper lithotomy positioning requires the patient's thighs to be flexed and

abducted, the knee joint to be flexed, and minimal external rotation of the hips [4].

The most commonly injured nerve at the time of gynecologic surgery is the femoral nerve. The inciting factor is thought to be direct compression by the inguinal ligament. This is most often secondary to improper patient positioning specifically excessive hip flexion, abduction, and external rotation. The prolonged compression of the nerve in these positions can lead to neuropathy and ischemic injury [4]. If a prolonged gynecologic surgery is anticipated, palpation of the femoral artery should be take place and the patient repositioned if diminished [5].

The correct size stirrups are paramount to minimizing improper lithotomy positioning and therefore femoral nerve injury. Utilizing the Hoyer Lifts and Slings®, as modelled in the case described above, we were able to facilitate proper positioning as we slowly elevated and adjusted both lower extremities simultaneously and in a controlled fashion.

Conclusion

Adapting new and innovative approaches to positioning extreme morbidly obese patients for thorough gynecologic evaluations and surgical procedures is essential as the population continues to struggle with obesity. Herein, we have detailed our method using an adaptation of the Hoyer Lift® to position patients' lower extremities that are too large to be placed in the current commercially available devices.

References

1. <http://www.hoyerlift.com/>
2. <http://www.allenmedical.com/shop/gyn--lapro--uro>
3. Barnett JC, Hurd WW, Rogers RM Jr, Williams NL, Shapiro SA (2007) Laparoscopic positioning and nerve injuries. J Minim Invasive Gynecol 14: 664-672.
4. Irvin W, Andersen W, Taylor P, Rice L. (2004) Minimizing the Risk of Neurologic Injury in Gynecologic Surgery. Obstet Gynecol. 103: 374-382.
5. H Bal, P Kumar, A Menon, AK Srivastava (2007) Femoral Neuropathy Following Vaginal Hysterectomy. MJAF 63: 390-391