Commentary

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Impact Affects the Central Nervous System, GIT, Cardiovascular & Pulmonary Systems

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Description

Abdominoplasty is thought to be the most performed aesthetic procedure. Despite the lack of accurate statistics, abdominoplasty represents a big chunk of the flow at any plastic surgery clinic. Its prevalence is multifactorial, either due to repeated pregnancies, weight fluctuation, ventral hernia, lack of proper exercise or due to the surge of bariatric procedures leading to increase in the demand for full abdominoplasty. The philosophy of procedure is to free the patient from the burden of the excess skin, elimination of the excess fat and to obtain a tight muscle corsage. The improvement of the silhouette comes at a price of a scar. All efforts should be made to make the scar as hidden and low as possible while maintaining the safety of the procedure.

Reinforcement of the Musculofascial System

Reinforcement of the musculofascial system is becoming an integral part of abdominoplasty especially in women. It is believed, the tighter the reinforcement, the better the abdomen reaches its scaphoid shape. The tight internal corsage increases the intraabdominal pressure (IAP). The normal intra-abdominal pressure ranges from 3 and 15mmHg. Despite its popularity, abdominoplasty is not a risk-free intervention. Complications range from a minor wound dehiscence or infection to more serious problems like deep venous thrombosis (1.1% risk) & pulmonary embolism (0.8%). Myofascial reinforcement has been incriminated as it leads to intraabdominal hypertension (sustained elevation >12mmHg) diminishing venous return& favoring venous stasis.

Several publications studied the correlation between those 2 factors yet only limited studies measured the intraabdominal pressure and tried to reach clinical implications. Intraabdominal hypertension (IAH) and abdominal compartment syndrome (ACS) are not synonyms, yet they are always linked together. This is due to the magnitude of morbidity and mortality allied to them. Their impact affects the central nervous system, GIT, cardiovascular & pulmonary systems, liver and kidney. Their effect on the abdominal wall itself is almost always forgotten. IAH vividly diminishes abdominal wall blood flow. Rectus sheath blood flow decreases up to 58% of baseline at an intraabdominal pressure (IAP) of only 10mmHg. These findings may justify the impaired wound healing & higher rates of infection. The quest for the ideal methods to measure IAP is still on going. Pressure can be measured through any organ directly affected by the IAP. These readings can be done in a continuous or intermittent fashion. The well-established routes for assessment are through: The bladder, stomach, rectal, vaginal, inferior vena cava or through a direct peritoneal pressure. A prospective study was conducted on patients presenting to the outpatient clinic of the Department of the Plastic & Reconstructive Surgery, Kasr Al-Ainy. The selection method of abdominoplasty patients employed, has used specific inclusion and exclusion criteria to ensure that a relatively homogeneous sample is being treated, and that the treatment being offered is appropriate and reasonable for any given patient. The inclusion criteria were: Diastasis of recti, scheduled to undergo elective abdominoplasty surgery without collateral procedures, age between 20-60 years, females: Not pregnant, not lactating and not planning to become pregnant for 2 years, being able to understand the study procedures and comply with those procedures and agree to participate in the study program and lastly no previous abdominal surgeries.

System Technique to Avoid Urinary Tract Infections

The other studies were seeking a closed system technique to avoid urinary tract infections thus they used a three-way catheter. A three- way Foley's catheter has an extra irrigation port to the standard balloon inflation port and urinary drainage port, allowing injection of the required amount of saline without separating the urinary collecting bag from the urinary drainage port, hence having a closed system, decreasing the occurrence of infection. However, in this study despite the use of a twoway Foley's catheter as an open system, because it was more feasible and more economical with the available resources, no cases of urinary tract infections were reported. Also it is important to note that the mean IAP values (mentioned below) and results were similar in all three studies, hence the use of a 2 way Foley's

catheter didn't have a drastically different outcome on this study. In this study, as well as in the studies of Talisman et al., 50-100ml of saline were injected in the bladder through the catheter's port after emptying it, which is in harmony with Neto et al.'s [14] study. As opposed to Al Basti et al., who injected 350ml of normal saline, just below the volume required to initiate the bladder muscle contraction. The injection of less than 100cc of normal saline lead to air bubbles in the system. In this study, as well as in the studies of Talisman et al., and Neto et al., all measurements were obtained when the zero standard level was at the level of the patient's symphysis pubis to avoid under or over estimation of intra-abdominal pressure. However, in the study of Al Basti et al., the zero standard level was at the level of the patient's heart.

The recording of peak inspiratory pressure was chosen in this study to assess the impact of surgery on intrathoracic pressure and was recorded immediately after induction of anesthesia and at the end of surgery. In both studies done by Talisman et al., and Al-Basti et al., the same parameter was used to assess the intrathoracic pressure, but AlBasti et al., added assessment of pulmonary functions two months post-operatively, with measurement of flow volume loop, forced vital capacity, forced expiratory volume in 1 second, peak expiratory flow, forced expiratory flow, and peak inspiratory force to exclude the effect of postoperative pain and to allow for muscular adaptation, in addition to the different purpose of their study which is evaluating any potential adverse effect on pulmonary function.