

Editorial Commentary

There is more to A.C.S. than meets the eye

Abdominal Compartment Syndrome (ACS) is a serious complication of abdominoplasty resulting from a raised intra abdominal pressure (IAP), particularly in patients who also present with a co-existing ventral or incisional hernia of long standing. The omentum and the intestines, having stayed in an artificially created spacious accommodation, are forced to go back to their native restrictive abode, which, during abdominoplasty, if muscle plication is done, is further restricted. Increasing intra-abdominal pressure causes progressive hypoperfusion and ischemia of the intestines and other peritoneal and retroperitoneal structures. Pathophysiological effects of this gut ischemia include release of cytokines, formation of oxygen free radicals, and decreased cellular production of adenosine triphosphate. These processes may lead to translocation of bacteria from the gut and intestinal edema, predisposing patients to multiorgan dysfunction syndrome. The consequences of abdominal compartment syndrome are profound and affect many vital body systems. Hemodynamic, respiratory, renal, and neurological abnormalities are hallmarks of abdominal compartment syndrome. Clinical findings include low cardiac output, increased peripheral vascular resistance, oliguria, anuria, increased airway pressure, low pulmonary compliance, and hypoxia. As the diaphragm is forced up by the abdominal contents, ventilation too is a problem and weaning these patients from ventilators take time and this often is an added complication.

Monitoring of IAP can be performed three different ways:

- By intragastric pressure measurement
- By inferior vena caval pressure measurement
- Through a bladder catheter

The latter is a simple, minimally invasive, low-cost method easily performed by the ward staff. After initiation of anesthesia, with the patient in the dorsal decubitus position, a three-way Foley bladder catheter is placed through the urethra. The bladder contents are emptied, and after closing of the urinary output port, 100 ml of saline solution is injected through the third port of the Foley catheter. A central venous pressure catheter is then used to measure the intraabdominal pressure in centimeters of H₂O^[1,2]. 12-15 cm of water is normal, 16-20 cm requires close monitoring, 21-25 cm is alarming and requires urgent decompression by laparotomy and above 25 cm is surely catastrophic.^[3,4]

Besides abdominoplasty, ACS is also seen in a variety of conditions which can be primary or secondary. Primary causes are blunt and penetrating abdominal trauma, liver transplantation, ruptured aortic aneurism, post operative intra abdominal bleeding, retro-peritoneal haemorrhage, mechanical intestinal obstruction and bleeding pelvic fractures. Secondary caused of raised IAP include severe intra-abdominal infection, large volume fluid replacement, ascitis, pancreatitis, ileus, sepsis, bajor burns, continuous ambulatory peritoneal dialysis, morbid obesity and even pregnancy! So not only plastic surgeons but general surgeons, urologists, paediatric surgeons, burn specialists, G.I.surgeons and intensivists and anaesthetists should be aware of this syndrome. ACS is often the initial fall of of the dominos on the eventual pathway of multi-system organ failure.

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