evaluation may be compromised. We should always be alert to clinical features, which are not easily attributed to a seizure. Recognition of the preceding cardiopulmonary symptoms and evaluation of the D-dimer value may be important for suspicion of PE. Further research is needed to evaluate the clinical use of these findings.

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References

Physical examination combined with focused assessment with sonography for trauma examination to clear hemodynamically stable blunt abdominal trauma patients

To the Editor,

The use of the focused assessment with sonography for trauma (FAST) examination has become standard practice over the past 10 years in the evaluation of patients with suspected abdominal trauma. It is generally accepted in trauma algorithms as an extension of the physical examination. Currently, it is used primarily to identify the need for an expedited emergency laparotomy in the hemodynamically unstable patient, unable to tolerate a computed tomographic (CT) scan. In hemodynamically stable patients, however, especially those with low-risk injury by history and physical examination, the role of the FAST examination to exclude further diagnostic testing is less studied. As a result, for most trauma centers, the standard practice is to follow a normal FAST examination with abdominal and pelvic CT imaging to exclude missed injuries, even in the clinically low-risk patient. In our study, we wanted to determine if CT scanning of the abdomen/pelvis could safely be excluded in hemodynamically stable, blunt abdominal trauma patients with normal neurologic status, no complaint of abdominal pain or tenderness to palpation, a normal FAST examination, and the absence of clinical findings suspicious for major abdominal injury.

This was a retrospective chart review of all trauma alerted patients at a Level 1 trauma center evaluated for possible blunt abdominal trauma who had a documented negative FAST examination, met inclusion criteria, and received a CT scan of the abdomen and pelvis during 1 calendar year. This study was approved by our local institutional review board committee. The records of all alerted trauma patients during the study period were reviewed to identify patients 18 to 89 years old, with systolic blood pressure greater than 100 mm Hg, heart rate less than 110 and greater than 60 beats per minute, and a Glasgow Coma Scale greater than or equal to 14. In addition, these patients had to have an adequate FAST examination that was negative for the evidence of free fluid in the 4 standard views and a normal clinical abdominal and pelvic examination that was free of tenderness and without anatomic deformities. Results of the FAST examination were compared with the results of the CT scan of the abdomen/pelvis and discrepancies noted.

A total of 1738 patients were alerted for trauma during the study period; 467 patients met inclusion criteria. Forty-three patients had CT scans demonstrating trauma-related intra-abdominal injuries, and 19 patients demonstrated infra-abdominal soft tissue injury. Of the 19 patients with soft tissue injury, 12 were noted to have injuries not typically identified by sonography, including bowel wall contusions; serosal tears; small hepatic, splenic, or renal lacerations; or contusions without active extravasation. None of these 12 patients had clinically significant injuries requiring intervention. Of the 19 patients with intra-abdominal soft tissue injury on CT scan, 6 had CT scans showing hematomas or free fluid, only one of whom was deemed to have a clinically significant injury. The negative predictive value (NPV) of these inclusion criteria for any intra-abdominal soft tissue injury identified on CT was 96.1%. For injuries associated with free fluid or hematoma, the NPV was 98.7%, and for those injuries deemed clinically significant, the NPV was 99.8%.

Our findings are consistent with those of large retrospective studies of blunt abdominal trauma patients that found similar sensitivity (85%-87%), specificity (97%-99%), positive predictive value (86%-88%), and NPV (98%-99%) for free fluid on FAST examination [1–4].

There are several advantages to safely excluding CT scanning in a subpopulation of blunt trauma patients. The first is the reduction in unnecessary radiation exposure to such patients. One retrospective review by Brenner and Elliston [5] showed that half of trauma patients who received a CT scan had no significant injury. Similarly, cost containment, without sacrificing quality, is becoming increasingly important. We need to be proactive in conducting studies that examine if certain tests can be safely eliminated in the workup of patients. A third advantage would be the use of such inclusion criteria when faced with a mass casualty situation. Reliable criteria could be very helpful in triaging patients appropriately when normal resources are overwhelmed. Finally, the use of such inclusion criteria could be beneficial in austere medical conditions, when advanced imaging is frequently unavailable in some third-world countries.

Our study suggests the CT scanning of the abdomen/pelvis could be safely eliminated in a certain subpopulation of blunt trauma patients. More studies with a larger number of patients would be helpful in definitively answering this question.

Sincerely,

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Anomalous origins of coronary arteries: frequency and association with coronary disease

To the Editor,

Most coronary artery anomalies are discovered accidentally during coronary angiography or autopsy [1–4]. As coronary angiography is routinely used to evaluate coronary morphology for diagnostic and treatment of coronary disease, it is important to be aware of these anatomical variants. In the present study, we examined the overall frequency in an Argentinean population and described the different forms of anomalous aortic origins of coronary arteries and the association with the coronary arteriosclerosis disease in the anomalous coronary arteries.

The database of the cardiac catheterization laboratories of Instituto Cardiovascular de Buenos Aires was used in this study. Reports from 5400 adult patients with symptomatic heart disease and, therefore, undergoing cardiac catheterization between 2004 and 2009 were analyzed.

Twenty-seven coronary arteries (0.5%) with anomalous origins were found, and these anomalies were classified in four main groups. Origin of the right coronary artery originated from the left side was the most frequent anomaly (15 cases). In 8 cases, the circumflex coronary artery originated from the right side; in 3 cases, the left coronary artery originated from the right side, and finally, we found 1 left anterior descending arteries originating from the right side. We found in 22 cases coronary artery disease with stenosis rather than 50% of the 27 patients with anomalous origins (80%), and in 11 cases (40%), this stenosis involved the anomalous artery.

The frequency of anomalous coronary artery origins was 0.5% in adult population patients with symptomatic heart disease and, therefore, undergoing cardiac catheterization. The association of this anomaly with coronary arteriosclerosis disease was 80%, and the association with a significant lesion stenosis (>50%) in the anomalous coronary arteries was 40%.

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References


The incidence of retained guidewires after central venous catheterization in a tertiary care center

To the Editor,

The incidence of retained guidewire (GW) after central vein catheterization with a central venous catheter (CVC) or Swann-Ganz catheter (SGC) is unknown and likely underreported. Missing part of or the whole GW during CVC placement has previously been described [1–6]. In an attempt to study the magnitude of this complication, an institutional review board–approved retrospective study of patients admitted to our 1018-bed facility between January 2011 and February 2013 was conducted. All interventional radiology (IR) reports that were coded for a “retained foreign body” were reviewed, and only cases with retained GWs were included. In this time frame, 15,644 procedures for central vein catheterization (12,887 CVCs and 2,716 SGCs) were placed. The catheters were not standardized in the study period (Arrow International and Cook Medical). Retained GW cases were analyzed with reference to patient demographics, body mass index (BMI), site of access, training level of operator, location (operating room [OR], intensive care unit [ICU]), time of incident, length of the retained portion, method of retrieval, and complications. A structured interview with the operators was performed to clarify the possible causes. We measured the incidence of GW retention per CVCs and SGCs placed. Ninety-five percent confidence interval (CI) was calculated with Wilson “score” method [7] with and without continuity correction.

During the 26-month period, we found 16 cases with retained foreign bodies requiring IR or vascular surgery for extraction, of which 9 were retained GWs during central venous catheterization. One retained GW occurred in a patient transported from an outside facility and was excluded. None of the retained GWs occurred after SGC insertion. The 8 cases (6 men and 2 men) analyzed had a mean age of 62 years (range, 36–87 years) and a mean BMI of 33 kg/m² (Table). The estimated incidence of retained GWs after CVC and SGC placement was 1:1991 (0.05%) procedures (95% CI, 1:5000–5:5000) to 1:3333–5:5000 with and without continuity correction, respectively. The estimated incidence of retained GWs related to CVC insertion was 1:1611 (0.06%) procedures (95% CI, 1:3333 to 4:333 with and without continuity correction). The listed operator was the actual line inserter and not a supervising physician. Four catheters were placed in the right internal jugular (JJ), 2 in the left subclavian, 1 in the right subclavian, and 1 in the left femoral vein. Six procedures were performed by an expert anesthesiologist (10–37 years of experience [PYG]; average, 19 years), 1 by a pulmonology fellow

★ Authorship attestations: Hesham Omar contributed significant insight into the study design, assistance with data collection, significant manuscript writing, and final approval of the current version to be published. Rachel Karlnoski was the study coordinator and contributed to the study design and submission, data interpretation and analysis, significant manuscript editing, and final approval of the current version to be published. Collin Sprecker contributed to the study design, significant manuscript writing, data collection and analysis, and final approval of the current version to be published. Jordan Miller contributed to the design of study, data collection and analysis, significant manuscript editing, and final approval of the current version to be published.

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