Spine Deformity
www.spine-deformity.org

Spine Deformity 7 (2019) 842–843

Letters to the Editor

Letter to the Editor: Celiac Artery Syndrome After Correction of Kyphoscoliosis

A well-written published report by Urk et al. describes a case in which a patient developed celiac artery compression syndrome with severe complications after surgical correction of kyphoscoliosis [1]. Although this occurrence is rare, this exact complication has been previously described by Daniels et al. [2]. Both cases are very similar in terms of patient history, deformity correction, and course of complications. Daniels et al. in 2009 described steps to potentially recognize and avoid this devastating surgical complication.

In the case described by Daniels et al., the patient had a 106° deformity that was corrected by an anterior release from T8–T12 and posterior spinal fusion with instrumentation T5–L3 [2]. The patient described by Urk et al. had a similar kyphotic deformity of 80°; however, the authors used a posterior correction and fusion from T6 to L4 [1]. In both cases, increases in liver enzymes were noted soon after the surgery, without further investigation. On postoperative day 5, Daniels et al. reported free air on an abdominal x-ray, which resulted in an exploratory laparotomy revealing a perforation of the gastric antrum with full-thickness necrosis [2]. Similarly, the recently published paper also noted free air on abdominal x-ray, albeit 31 days after surgery. These radiographic findings also led to an exploratory laparotomy showing mesenteric ischemic changes [1]. A subsequent computed tomographic angiography in both cases demonstrated occlusion of the celiac artery as the source of the mesenteric ischemia. Both articles suggest that the anatomic relationship of the median arcuate ligament (MAL) to the celiac artery may contribute to compression after deformity correction [1,2]. In addition, Daniels et al. suggest a computed tomographic angiography to confirm the diagnosis when it is suspected, which may have led to an earlier diagnosis in the Urk et al. case [1]. Although the course of these two cases was slightly different, each had the same source of complication following surgery.

The 2009 report by Daniels et al. suggests that there may not be a way to prevent celiac artery compression syndrome; however, close postoperative monitoring and clinical vigilance on the part of the physician is necessary [2]. Surgeons should have a high suspicion for this injury following kyphosis correction when a patient develops abdominal pain in conjunction with elevated liver enzymes without a clear etiology. Although uncommon, this serious complication has previously been previously reported, and is one that spine surgeons should be aware of when performing adult deformity surgery for severe kyphoscoliosis. In the event of postoperative sepsis after kyphosis correction, or prolonged abdominal symptoms or liver enzyme elevation, celiac artery compression should be evaluated via angiography or CT angiography.

Devan D. Patel, MD
Steven F. DeFroda, MD
Alan H. Daniels, MD

Department of Orthopedic Surgery
Warren Alpert Medical School
Providence, RI, USA

https://doi.org/10.1016/j.jspd.2019.02.011

References

[1] Urk PV, Littooij A, Gestel JV, Kruyt M. Celiac artery syndrome after correction of kyphoscoliosis. *Spine Deformity*. 2019;7:176–9.
[2] Daniels AH, Jurgensmeier D, Mckee J, et al. Acute celiac artery compression syndrome after surgical correction of Scheuermann kyphosis. *Spine*. 2009;**34**:E149–52.

Letter to the Editor Concerning: "Celiac Artery Syndrome After Correction of Kyphoscoliosis" by van Urk P.R., Littooij A.S., van Gestel J.P.J., Kruyt M.C., Spine Deformity 7(2019):176–179

Dear Editor,

We are grateful to our colleagues for their attention and comments to the above case report [1]. There are indeed striking similarities between our case and the case of Daniels et al., especially with regard to the initial elevated liver enzymes [2]. Such a finding should be considered an early warning sign for the acute celiac artery syndrome