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Letter to the Editor

About the common trunk of the inferior phrenic arteries

To the Editor

We read with great interest the article "Variations in the source of origin of inferior phrenic artery: a cadaveric study" by Akhilandeswari and Ranganath,[1] published in Journal of the Anatomical Society of India. This is due to the fact that in the last two years we have devoted special attention to the inferior phrenic arteries (IPAs) and published two articles on this subject. We would like to congratulate the authors for the clarity of presentation, the clinical significance of IPAs and the conclusions drawn.

The IPAs supply the diaphragm, adrenal glands, esophagus, stomach, liver, inferior vena cava and retroperitoneum.[2] In descending order of frequency, the right inferior phrenic artery (RIPA) and left inferior phrenic artery (LIPA) originate as separate arteries from the abdominal aorta (AA) or the celiac trunk (CT), and sometimes from the left gastric artery, common hepatic artery, renal arteries and superior mesenteric artery, but with a much lower frequency.[3,4] The RIPA and LIPA arise from a common trunk, the inferior phrenic arteries trunk (IPAT). An early report[4] of six anatomical and radiologic studies (1700 cases) showed that the origin of the IPAT was the AA in 21.40% of cases, the CT in 13.60% and the left gastric artery in 0.07%.

Recently, using MDCT angiography, we identified two new anatomical variants of the origins of the IPAs: the trunk of the IPAs originating from a common stem with a superior additional left renal artery,[3] and a common stem origin of the left gastric, right and left inferior phrenic arteries, in association with a hepatosplenomesenteric trunk, independently arising from the AA.[4]

In this study of 32 formalin-fixed cadavers, the authors revealed 32 RIPA and 32 LIPA with a separate origin in the: AA (53.125%; right 56.250% – left 50.00%), CT (28.125%; right 18.750% – left 37.50%), renal arteries (15.625%; right 18.750% – left 12.50%) and superior mesenteric artery (3.125%; right 6.250% – left 0%). To our knowledge, this is the first study of a series of cases which did not show the presence of an IPAT. It is possible that with a greater number of patients, more cases with an IPAT would be observed. In a study of 300 cases, Loukas et al[2] found that the IPAT originated from the AA in 31% of cases and from the CT in 11%.

We would like to point out two distinct problems in the authors' presentation: first, the authors may wish to reconsider the percentages of RIPA, LIPA and IPAT originating from different sources, and second, to correct a reference omission. In the discussion, the authors did not take into account the prevalence rates of various origins of the IPAT shown by quoted authors.[2,5] For example, in the series by Loukas et al[2] of 300 anatomical cases, the RIPA, LIPA and IPAT originated from the AA in 7%, 14% and 31% of cases, respectively, and from the CT in 29%, 36% and 11% of cases, respectively. Akhilandeswari and Ranganath[1] quoted Loukas et al[2] with the RIPA and LIPA originating from the AA in 38% and 45% of cases, respectively, and from the CT in 40% and 47% of cases, respectively. Thus, the authors explained the origin of both the RIPA and LIPA, without explaining the origin of the IPAT. The work of Basile et al (2008), cited as number 14 in Table 3, did not appear in the reference section in this article. The details of this reference are as follows:

> Basile A, Tsetis D, Montineri A, et al. MDCT anatomic assessment of right inferior phrenic artery origin related to potential supply to hepatocellular carcinoma and its embolization. *Cardiovasc Intervent Radiol*. 2008;31:349–358.

Considering that the presence and origin of IPAT is essential in the planning and implementation of transcatheter arterial chemoembolization for the treatment of unresectable hepatocellular carcinomas, ignoring the IPAT, and considering only the distribution of the IPAs is a mistake.

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