




Clinical Image

Beaver tail liver: an incidental but crucial anatomical variation in case of acute abdomen

Serghei Covantsev ^{a,*} , Ivan Lebedinsky ^b, Diana Slepukhova ^c, Maria Kovaleva ^c, Karina Mulaeva ^c

^a Department of Research and Clinical Development, Botkin Hospital, 2nd Botkinsky drive, 5, Moscow, Russia

^b Department of General Oncology, Botkin Hospital, 2nd Botkinsky drive, 5, Moscow, Russia

^c Department of Surgery, Russian Medical Academy of Continuous Professional Education, Barrikadnaya st., 2/1, building 1, Moscow, Russia

ARTICLE INFO

Article history:

Received 31 December 2022

Received in revised form 01 February 2023

Accepted 06 February 2023

Keywords:

Beaver tail liver Spleen

Liver

Anatomy

© 2023 The Authors. Published by Iberoamerican Journal of Medicine. This is an open access article under the CC BY license (<http://creativecommons.org/licenses/by/4.0/>).

Hígado de cola de castor: una variación anatómica incidental pero crucial en caso de abdomen agudo

INFO. ARTÍCULO

Historia del artículo:

Recibido 31 Diciembre 2022

Recibido en forma revisada 01 Febrero 2023

Aceptado 06 Febrero 2023

Palabras clave:

Hígado de cola de castor Bazo

Hígado

Anatomía

© 2023 Los Autores. Publicado por Iberoamerican Journal of Medicine. Éste es un artículo en acceso abierto bajo licencia CC BY (<http://creativecommons.org/licenses/by/4.0/>).

HOW TO CITE THIS ARTICLE: Covantsev S, Lebedinsky I, Slepukhova D, Kovaleva M, Mulaeva K. Beaver tail liver: an incidental but crucial anatomical variation in case of acute abdomen. *Iberoam J Med.* 2023(2):93-95. doi: 10.53986/ibjm.2023.0008.

Anatomical variations of the liver are relatively understudied, while they deserve special attention in the day-to-day clinical practice [1, 2]. Beaver tail liver (also known as sliver of liver, sabre-shaped liver or falx-like liver)

is a normal anatomical variation of liver development when an elongated left liver lobe extends laterally contacts and/or surrounds the spleen. The true incidence of this developmental variation is not known. It is seen more

* Corresponding author.

E-mail address: kovantsev.s.d@gmail.com

ISSN: 2695-5075 / © 2023 The Authors. Published by Iberoamerican Journal of Medicine. This is an open access article under the CC BY license (<http://creativecommons.org/licenses/by/4.0/>).

<https://doi.org/10.53986/ibjm.2023.0008>

predominantly in females and usually encountered incidentally during routine ultrasound or computed tomography (CT) evaluation of the abdomen. However, it is a difficult imaging picture in setting of an acute abdomen or trauma. Due to similar density and echogenicity, the two organs may be hard to differentiate during examination. We present a clinical image of a 42-year old female admitted to the emergency department with abdominal pain irradiating to the back that began abruptly with no apparent reason. Her laboratory examination revealed moderate leukocytosis and anemia (leukocytes $12 \times 10^9/l$ [normal range $4-9 \times 10^9/l$], erythrocytes $3,2 \times 10^{12}/l$ [normal range $3,8-5,2 \times 10^{12}/l$], hemoglobin 101 g/l [normal range 120-150 g/l]). Her abdominal CT revealed adrenal mass with signs of intraparenchymal hemorrhage and beaver tail liver. Figure 1 demonstrates the difficulties in differentiation of the two organs that seem similar in the native and portal phases of examination and are different only in the arterial phase of the study. The patient undergone suprarenal angiography of the adrenal artery, which demonstrated extravasation of contrast material. We performed selective catheterization of adrenal arteries and embolization of her adrenal mass. The postoperative period was uneventful and she was discharged 10 days after the procedure. Further evaluation revealed normetanephrine value 1180 mcg/d (normal value <600 mcg/d), she was consulted by an endocrinologist and scheduled for a planned adrenalectomy, which confirmed adrenocortical carcinoma. Beaver-like liver is an important anatomical variation as it can be mistaken for perisplenitis, subcapsular hematoma, and splenic mass [3, 4]. Abdominal trauma in the left hypochondrium region that usually lead to splenic injury can in turn affect the left lobe of the liver [5].

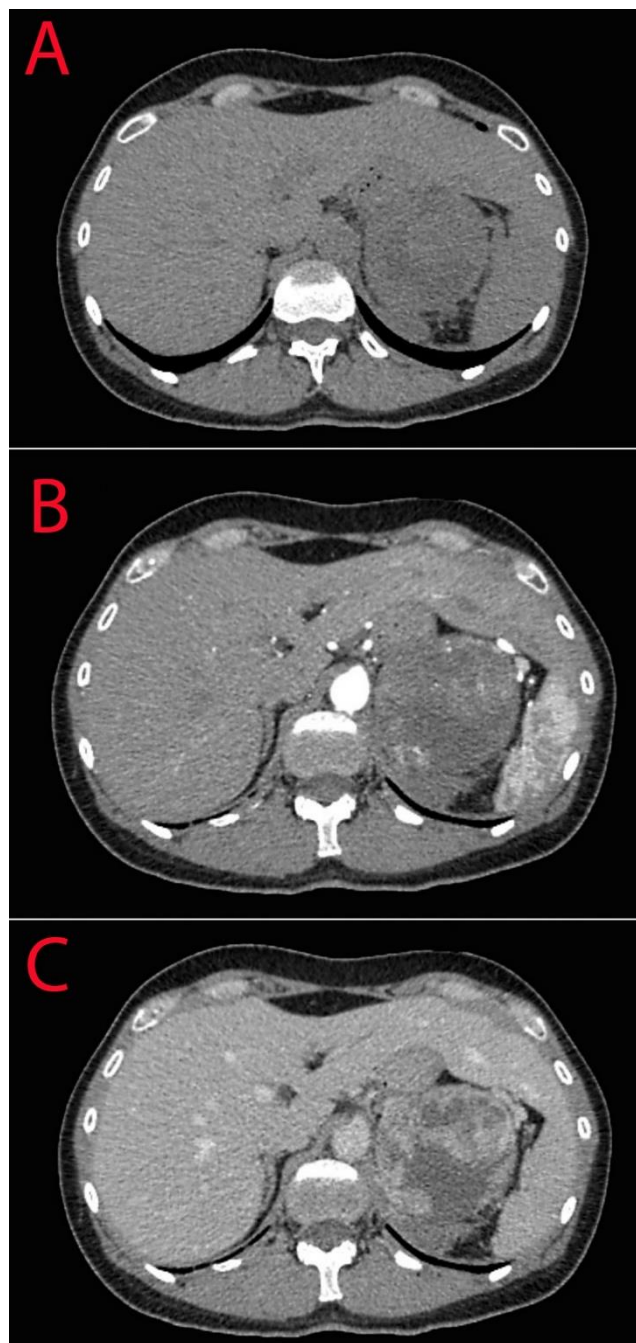


Figure 1: Abdominal CT scan of the patient (the liver can be differentiated from the spleen during the arterial phase). A: Native phase; B: Arterial phase; C: Venous phase.

1. CONFLICT OF INTERESTS

The authors have no conflict of interest to declare. The authors declared that this study has received no financial

support.

2. REFERENCES

1. Glenisson M, Salloum C, Lim C, Lacaze L, Malek A, Enriquez A, et al. Accessory liver lobes: anatomical description and clinical implications. *J Visc Surg.* 2014;151(6):451-5. doi: 10.1016/j.jvisurg.2014.09.013.
2. Covanțev S, Mazuruc N, Catereniuc I, Belic O. Accessory liver fissures: a report of two cases and review of their clinical significance. *Russ. Open Medical J.* 2018; 7(3):e0303.
3. Atalar MH, Karakus K. Beaver tail liver. *Abdom Radiol (NY).* 2018 Jul;43(7):1851-1852. doi: 10.1007/s00261-017-1395-x.
4. Xiang H, Han J, Ridley WE, Ridley LJ. Beaver tail liver: Anatomic variant. *J Med Imaging Radiat Oncol.* 2018;62 Suppl 1:57. doi: 10.1111/1754-9485.05_12784.
5. Md Noh MSF, Muhammad SJSS. Beaver in the liver. *Pan Afr Med J.* 2017;27:138. doi: 10.11604/pamj.2017.27.138.12227.