Topic : Liver

## A STUDY ON THE PROBLEMS OF COUINAUD'S SEGMENTAL ANATOMY OF THE RIGHT LIVER USING 3D RECONSTRUCTION IMAGE, FOCUSING ON THE CRANIO-CAUDAL BORDER OF THE RIGHT ANTERIOR SEGMENT

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**Background** : Recent advances in medical imaging technology, particularly 3D reconstruction techniques, have revealed that Couinaud's model does not perfectly reflect the actual anatomical structure of the liver. This study analyzed the Glissonean pedicles of the right anterior sector and their corresponding territories using 3D reconstruction techniques, with particular focus on the presence of a transverse line that corresponds to the boundary distinguishing the cranio-caudal segments in Couinaud's model.

**Methods** : Using abdominal CT scans from 140 living liver donors, three-dimensional images of the right anterior Glissonean pedicles were reconstructed using Synapse 3D (Fujifilm Medical, Tokyo, Japan).

**Results** : The cranio-caudal type or type A accounted for 64 cases (45.7%). The ventral-dorsal type or type B accounted for 27 cases (19.3%). The radial type or type C, which usually has four or more 3rd order branches, accounted for 36 cases (25.7%). The slidden type or type D accounted for 13 cases (9.3%). Meanwhile, among all cases, there were 58 cases (41.4%) with a clear transverse line and 82 cases (58.6%) with an unclear line that was not inclined more than 45 degrees from perpendicular and where the volume difference between segments 5 and 8 was less than twofold.

**Conclusions** : There were more cases where it was difficult to identify a clear cranio-caudal intersegmental plane. This suggests that Couinaud segmentectomy cannot be considered an anatomical resection. An anatomical resection involves ligating at the root of the 3rd order branch of the right anterior Glissonean pedicles and resecting the discolored territory. This can be facilitated through 3D imaging techniques.

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