Watershed hepatocellular carcinoma – utility of cone beam CT for transcatheter therapy

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Statement of the Problem: Transcatheter arterial chemoembolization (TACE) for the treatment of unresectable hepatocellular carcinoma (HCC) has shown survival benefit and is widely utilized. To achieve a complete response (CR), the entire target tumor volume must be chemoembolized. Watershed HCCs, those bridging two or more Couinaud liver segments, commonly receive arterial supply from more than one segmental hepatic artery regardless of tumor size. Consequently, watershed HCCs have lower CR rates and higher rates of local tumor progression after TACE. These suboptimal results are at least partially attributable to incomplete treatment, i.e. not embolizing one or more tumor-feeding arterial branches during TACE. Intraprocedural C-arm cone beam CT (CBCT) is widely utilized during various interventional procedures including TACE and has a role complimentary to digital subtraction angiography (DSA). In the setting of watershed HCC, CBCT is particularly useful for tumor targeting (i.e., mapping of arterial supply to the tumor) and treatment monitoring (i.e., assessing the extent of tumor coverage after embolic delivery).

Methodology & Theoretical Orientation: Using a case-based approach, we will discuss the utility and various roles of CBCT in transarterial liver directed therapies. CBCT protocol and utilization will be covered.

Findings: CBCT facilitates tumor arterial supply mapping, may detect tumor-supplying arterial branches not apparent by DSA alone, and provides additional information in the characterization of "pseudolesions", i.e., questionable HCCs. CBCT also allows assessment of tumor coverage after embolization, improving operator confidence that a complete treatment was provided or raising operator suspicion for additional tumor feeding arteries.

Conclusion & Significance: CBCT plays a central role in modern transarterial liver therapy, particularly in the treatment of complex tumors such as watershed HCCs. Understanding the specific strengths and added value of CBCT allows effective use of this technology.

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Ayurvedic approach for management of liver parenchymal disease: A case study

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Diseases of liver, biliary tract and pancreas are grouped under *Grahani* and *Udar Roga*. These triode has been narrated as places of Agni i.e., digestion, metabolism and assimilation. Agni refers to digestion and metabolism mechanism of human body and normal physiology of Agni is essential for maintenance of healthy status. Its vitiation leads to different ailments especially disorders of GIT. Liver parenchymal diseases were considered as *Udar Roga*. Alcohol has been identified as the major cause of liver parenchymal disease, but the ancient Ayurveda scholar Acharya Charaka identified different causes like drinking cold beverages/cold water after heavy food, eating unwholesome food in indigestion, diseases of other visceral organs, and piles, etc. Present management options for Liver parenchymal disease is limited, liver transplant is costly management and has limitation of getting donor and bears risk. Ayurveda with its holistic approach of management offers management options with low risk, and better general wellbeing control of symptoms with oral medicaments or simple OPD based procedures. Author has treated liver parenchymal disease and remarkable improvement in symptoms and general wellbeing has been observed. Marked improvement was observed in cases chronic liver parenchymal disease, pancreatic calculus, hydatid cysts with only Ayurveda medicaments (mostly herbal treatment). The clinical success stories would be dealt in details in full paper.

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