World Academy of Science, Engineering and Technology
International Journal of Biomedical and Biological Engineering
Vol:18, No:04, 2024

Severe Post Operative Gas Gangrene of the Liver: Off-Label Treatment by Percutaneous Radiofrequency Ablation

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Abstract : Gas gangrene is a rare, severe infection with a very high mortality rate caused by Clostridium species. The infection causes a non-suppurative localized producing gas lesion from which harmful toxins that impair the inflammatory response cause vessel damage and multiple organ failure. Gas gangrene of the liver is very rare and develops suddenly, often as a complication of abdominal surgery and liver transplantation. The present paper deals with a case of gas gangrene of the liver that occurred after percutaneous MW ablation of hepatocellular carcinoma, resulting in progressive liver necrosis and multi-organ failure in spite of specific antibiotics administration. The patient was successfully treated with percutaneous Radiofrequency ablation. Case report: Female, 76 years old, Child A class cirrhosis, treated with synchronous insertion of 3 MW antennae for large HCC (5.5 cm) in the VIII segment. 24 hours after treatment, the patient was asymptomatic and left the hospital . 2 days later, she complained of fever, weakness, abdominal swelling, and pain. Abdominal US detected a 2.3 cm in size gas-containing area, eccentric within the large (7 cm) ablated area. The patient was promptly hospitalized with the diagnosis of anaerobic liver abscess and started antibiotic therapy with Imipenem/cilastatine+metronidazole+teicoplanine. On the fourth day, the patient was moved to the ICU because of dyspnea, congestive heart failure, atrial fibrillation, right pleural effusion, ascites, and renal failure. Blood tests demonstrated severe leukopenia and neutropenia, anemia, increased creatinine and blood nitrogen, high-level FDP, and high INR. Blood cultures were negative. At US, unenhanced CT, and CEUS, a progressive enlargement of the infected liver lesion was observed. Percutaneous drainage was attempted, but only drops of non-suppurative brownish material could be obtained. Pleural and peritoneal drainages gave serosanguineous muddy fluid. The Surgeon and the Anesthesiologist excluded any indication of surgical resection because of the high perioperative mortality risk. Therefore, we asked for the informed consent of the patient and her relatives to treat the gangrenous liver lesion by percutaneous Ablation. Under conscious sedation, percutaneous RFA of GG was performed by double insertion of 3 cool-tip needles (Covidien LDT, USA) into the infected area. The procedure was well tolerated by the patient. A dramatic improvement in the patient's condition was observed in the subsequent 24 hours and thereafter. Fever and dyspnea disappeared. Normalization of blood tests, including creatinine, was observed within 4 days. Heart performance improved, 10 days after the RFA the patient left the hospital and was followed-up with weekly as an outpatient for 2 months and every two months thereafter. At 18 months follow-up, the patient is well compensated (Child-Pugh class B7), without any peritoneal or pleural effusion and without any HCC recurrence at imaging (US every 3 months, CT every 6 months). Percutaneous RFA could be a valuable therapy of focal GG of the liver in patients non-responder to antibiotics and when surgery and liver transplantation are not feasible. A fast and early indication is needed in case of rapid worsening of patient's conditions.

Keywords : liver tumor ablation, interventional ultrasound, liver infection, gas gangrene, radiofrequency ablation
Conference Title : ICIO 2024 : International Conference on Interventional Oncology
Conference Location : Boston, United States
Conference Dates : April 22-23, 2024

Open Science Index, Biomedical and Biological Engineering Vol:18, No:04, 2024 publications.waset.org/abstracts/172799.pdf