

Original Article

Pleural Effusion after Percutaneous Radiofrequency Ablation for Hepatic Malignancies

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Abstract.

Background and Aims: Radiofrequency ablation (RFA) can play an important role in the treatment of primary or metastatic liver tumors. Currently, percutaneous RFA is generally regarded as a safe, effective, and minimally invasive procedure. This study aimed to evaluate the presence and course of pleural effusion after monopolar RFA.

Methods: From October 2008 to July 2013, a total of 54 patients (28 male and 26 female, mean age 65.2) treated with monopolar RFA were included in our study. 47 patients were diagnosed with hepatocellular carcinoma, 4 patients with hepatic metastasis, and 3 patients had other diagnoses. There were a total of 115 sessions of treatment and 199 liver tumors to be treated (1.73 ± 1.02 tumors treated per session). The tumor size ranged from 0.8 cm to 5.0 cm (mean 2.31 cm, standard deviation 1.04 cm). Thereafter, a follow-up ultrasound was performed within 24 hours subsequent to ablation to evaluate the presence of pleural effusion. The degree of pleural effusion was assessed by chest X-ray.

Results: Fifteen (13.0%) treatment sessions in 14 patients showed right-sided pleural effusion after ablations. One patient had a large amount of effusion, while other patients manifested a minimal to small amount of effusion. There were 5 patients that experienced delayed resolution of pleural effusion; one patient (0.87%) had a minimal amount of pleural effusion even after one month. Overall, there was no pneumothorax, or periprocedural mortality. Age, gender, tumor numbers, tumor sizes, and complete ablation of target tumors were similar among groups presenting with or without pleural effusion. Tumor locations associated with S78 segments abutting the diaphragm or right lobe of the liver were not associated with development of pleural effusion. Only the duration of ablation time had a marginal trend toward significance ($p = 0.051$).

Conclusions: The transient appearance of right-sided pleural effusion after percutaneous RFA for hepatic malignancies was not infrequent. However, refractory pleural effusion was rare.

Keywords : thermoablation, pleural effusion

原著論文

肝惡性腫瘤經皮射頻消融術後之肋膜積液表現

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中文摘要

背景：射頻消融術在治療肝臟惡性腫瘤包括原發性肝癌與肝轉移癌皆有相當的角色。經皮射頻消融術式被認為是一個安全性高、有效、且微小侵襲性的治療。本研究的目的是探討單極經皮射頻消融術後之肋膜積液表現。

方法：本研究共收入 54 位(28 位男性與 26 位女性，平均年齡 65.2 歲)接受單極經皮射頻消融術患者。其中 47 位的診斷為肝細胞癌、4 位為肝轉移癌、3 位為其他肝臟惡性腫瘤。本研究收入總共 115 次的射頻消融術治療 199 顆肝腫瘤(每次治療平均消融 1.73 ± 1.02 顆腫瘤)。腫瘤大小為 0.8 到 5.0 公分(平均 2.31 公分，標準差 1.04 公分)。在射頻消融術後 24 小時內，患者接受超音波追蹤評估是否有肋膜積液，存在肋膜積液的患者以胸部 X 光評估肋膜積液量。

結果：本研究在 14 位患者共 15 次(13.0%)射頻消融術後觀察到有右側肋膜積液。其中 1 位患者積液量為大量，其餘皆為少量積液。5 位患者肋膜積液有延遲性吸收。1 位患者在一個月後仍有微量的右側肋膜積液。本研究患者並未觀察到有氣胸或治療後短期死亡病例。經分析後，年齡、性別、腫瘤數目、腫瘤大小、與腫瘤消融率在是否產生肋膜積液的兩個患者族群均相似。腫瘤是否位在靠近橫隔膜的肝臟分段或肝臟右葉並無與是否產生肋膜積液有顯著相關。唯較長的射頻消融術治療時間有邊際傾向產生肋膜積液的趨勢($p=0.051$)。

結論：在經皮射頻消融術治療肝惡性腫瘤後之右側肋膜積液並不罕見。這些肋膜積液大多數在短時間內會自動吸收而不需要抽吸，在一個月後仍存有肋膜積液的病例則極為少見。

關鍵字：射頻消融、肋膜積液

INTRODUCTION

Liver cancer has been one of the leading causes of cancer-related mortality worldwide [1]. Within the liver cancer category, hepatocellular carcinoma (HCC) was the most commonly diagnosed primary liver cancer. Local ablation therapies were considered to be effective treatments for early stage HCC [2,3]. Ra-

diofrequency ablation (RFA) was deemed more effective than other local ablation modalities in HCC treatment for its high rate of technique effectiveness, low local recurrence rate, and good prognosis [4]. Recently, RFA was reported to be an effective treatment for small and medium-sized HCCs using the multiple electrode switching system [5]. Secondary liver tu-

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