Materials and Methods

reviewed our experience with thoracic intraoperative brachytherapy patients who had already received external beam radiation. We technique in an attempt to reduce local recurrence, particularly for surgical resection of thoracic malignancies, particularly when close or to the area (median 50.4 Gy). Final margins were microscopically mediastinum (n=9). Twenty-six patients had previously received EBRT. Treated sites were lung (n=16), chest wall/paraspinal (n=16), and tumors was NSCLC (n=19), sarcoma (n=12), mesothelioma (n=2),

Results: In all cases treatment was successfully delivered with no brachytherapy-related complications. At a median followup of 5.7 months, there has been no local progression of disease. Median was 1400 cGy (range 1200-1800 cGy) with a median GTV 90% of 57% (range 40-89%). In all cases the spinal cord/cauda maximum dose constraints were met. 2 patients (66.7%) had significant pain relief 1-4 weeks following treatment.

Conclusions: Intraoperative and percutaneous Ir-192 HDR spine brachytherapy is not associated with complications or acute toxicity; while these therapeutic methodologies are in the early investigational stages, they may provide a safe and effective means of treating multiply irradiated sites of disease progression in the spine. In addition, use of the percutaneous technique provides a novel salvage treatment modality for patients who are not appropriate surgical candidates.

PO-391
INTRAOPERATIVE BRACHYTHERAPY FOR THORACIC MALIGNECIES RESECTED WITH CLOSE OR POSITIVE MARGINS
A.J. Wu1, G.N. Cohen2, K.E. Rosenzveig2, M.J. Zelefsky3, M.S. Bains2, A. Rimner3
1Memorial Sloan-Kettering Cancer Center, Radiation Oncology, New York NY, USA
2Memorial Sloan-Kettering Cancer Center, Medical Physics, New York NY, USA
3Mount Sinai Medical Center, Radiation Oncology, New York NY, USA

Purpose/Objective: Local recurrence is a significant problem after surgical resection of thoracic malignancies, particularly when close or positive margins are anticipated. As intraoperative radiotherapy can deliver radiation directly to the threatened margin, we used this technique in an attempt to reduce local recurrence, particularly for patients who had already received external beam radiation. We reviewed our experience with thoracic intraoperative brachytherapy to assess disease control and toxicity outcomes.

Materials and Methods: We performed a retrospective review of patients undergoing permanent I-125 mesh placement or temporary Ir-192 afterloading therapy during surgical resection of primary or metastatic thoracic tumors between 2001 and 2011. In general, for I-125 brachytherapy, iodine seeds were sutured into a mesh at 1cm intervals to form a planar implant delivering 100-150Gy to the MPD, which was then sutured onto the at-risk site. For Ir-192 brachytherapy, a HAM applicator was apposed to the at-risk site, then connected to the afterloader to deliver 12-15Gy to a depth of 0.5cm from the applicator surface.

Results: Forty-one procedures (33 permanent, 8 temporary) were performed on 40 patients (28-74 years old, median 57). Histology of tumors was NSCLC (n=19), sarcoma (n=12), mesothelioma (n=2), thymic carcinoma (n=7) and metastatic renal cell carcinoma (n=1). Treated sites were lung (n=16), chest wall/paraspinal (n=16), and mediastinum (n=9). Twenty-six patients had previously received EBRT to the area (median 50.4 Gy). Final margins were microscopically negative in 20 cases (49%) and positive or not assessable in the remainder. The median size of the treated area was 25cm² (range: 4-70cm²). The median followup was 30 months. Actuarial local control at 1 and 2 years was 74% and 67% respectively. Overall survival at 1 and 2 years was 86% and 75% respectively. No perioperative deaths occurred. There was no significant difference in local control according to margin status or brachytherapy technique. Seven patients (17%) experienced toxicity possibly related to brachytherapy: 4 patients required reoperation for empyema, 1 patient developed apparent bronchopleural fistula, and 1 patient developed possible radiation pneumonitis. One patient, who also had a distant history of mantle-field irradiation for lymphoma, died from complications of SVC syndrome possibly related to radiation fibrosis, four years after brachytherapy.

Conclusions: Intraoperative brachytherapy is associated with good local control after resection of thoracic tumors felt to be at very high risk for recurrence due to close or positive margins. There does not appear to be an excessive rate of severe toxicity attributable to brachytherapy. Intraoperative brachytherapy should be considered in situations where the oncologic completeness of thoracic tumor resection is in doubt.
PO-393
125I SEEDS BRACHYTHERAPY TO TREAT MALIGNANT SUBLINGUAL GLAND TUMORS
Y. Shi1, M.W. Huang1, L. Zheng1, S.M. Liu1, J. Zhang1, J.G. Zhang1
1Peking University School of Stomatology, Oral & Maxillofacial Surgery, Beijing, China

Purpose/Objective: The goal of the study is to conclude local control rate, survival rate of brachytherapy using 125I radioactive seeds for treating malignant sublingual gland tumors.

Materials and Methods: Twenty-one patients of sublingual gland derived malignant tumor, including nine males and twelve females, median age 51, were collected in the study. There were 16 adenoid cystic carcinoma, 3 mucoepidermoid carcinoma, 1 adenoid carcinoma and 1 malignant pleomorphic adenoma. Twenty patients were treated by surgical resection, eleven were local tumor resection and nine were composite procedures, including four segmental mandibulectomy and five marginal jaw resection. Selective neck dissection was performed in 7 patients. These twenty patients received 125I seeds interstitial brachytherapy after surgery. One patient couldn’t afford surgery and received brachytherapy alone. Brachytherapy were designed by treatment planning system. Patients were implanted a mean amount of 39.8 seeds, ranging from 8-92. The total seeds activity is 31.0mCi (1147MBq) on average. The prescription dose ranged from 60~120Gy. Each patient received quality verification and was followed up.

Results: Twenty-one patients were followed up for 16-113 months (median 44 months). There were one local recurrence and four distant metastasis, including two died of lung metastasis. No severe complications such as osteomyelitis were observed. The local control rate is 95.2%. One-year and three-year survival rate is 100% and 85.8%. Three-year survival rate with and without distant metastasis are 100% and 50% respectively (P<0.05).

Conclusions: 125I radioactive seeds interstitial brachytherapy to treat malignant sublingual gland tumors is effective. The short-term outcome is good compared with previous literatures, the long term outcome needs to be proven.

PO-394
IMPROVED CTV DOSE HOMOGENEITY AND NORMAL TISSUE MAXIMUM DOSE FOR ESOPHAGEAL HDR USING A THREE TUBE TECHNIQUE
J. Greskovic1, M. Kolar1, A. Godley1, A. Wilkinson1
1Cleveland Clinic, Radiation Oncology, Cleveland OH, USA

Purpose/Objective: We conducted a dose-volume comparison for CTV and normal tissues after placement of 1 or 3 HDR tubes for esophageal HDR brachytherapy. We reviewed the outcomes of 5 patients with over 1 year follow up implanted with a two or three tube technique.

Materials and Methods: A dose-volume study for HDR using one vs. three tubes was completed. The three tube technique involved tapping the tubes together near the distal ends with spacing to facilitate endoscopic placement. Radiopaque clips were placed 2 cm proximal and distal to tumor to define CTV. The 3 tubes were placed over a single guidewire under fluoroscopic guidance past the distal clip. CT-based treatment planning using Oncentra MasterPlan Ver. 3.3 was accomplished. The CTV was a 2mm thickness of the mucosal wall between the clips. We evaluated the dose-volume relationships for CTV and normal tissues for the 1versus 3 catheter techniques, each planned with V100 of 90%. The maximum dose to the normal tissues was the dose received by a volume of 0.04cc. We reviewed the outcome of our first five patients treated with two or three tube technique.

Results: The V100, V150, V200, V300 were 90.0%, 73.5%, 62.3%, 46.0% vs. 90.2%, 66.7%, 41.5%, 17.7%, for the one and three catheter placements, respectively. For the three catheter technique, the implant volume was 50% smaller (V100: 42.7cc vs. 83.8cc; V150: 22.2cc vs. 42.8cc; V200: 13.1cc vs. 26.0cc; V300: 5.6cc vs. 12.3cc). With respect to the normal tissues, the heart (6.0Gy vs. 11.2Gy), right lung (4.3Gy vs. 12.0Gy), right proximal bronchial tree (6.2Gy vs. 13.1Gy), trachea (5.8Gy vs. 7.3Gy), and vertebral body (6.5Gy vs. 13.1Gy) received much lower doses per fraction using the three catheter technique vs. the one catheter technique. Five patients treated with two or three tube technique with over one year follow up included 3 recurrent tumors after previous radiation, 1 early stage, and 1 locally advanced stage (staging: rT1N0, T1N0, T3N1). The HDR dose was 25 Gy/5 fx for rT1N0, 30 Gy/6 fx for T1N0, and 10 Gy/2 fx boost after 60 Gy/30 fx external radiation for T3N1. The prescribed depth was 5-8 mm. Three patients are NED. One patient with rT1N0 developed liver metastases but was without esophageal recurrence one year after HDR. One patient with rT1N0 required serial dilatations starting two months after HDR and ultimately had positive biopsy for recurrence eight months after HDR. Only 1 of 5 patients developed stricture and it was related to tumor recurrence. No cases of fistula were noted.

Conclusions: The dose homogeneity was improved using three brachytherapy catheters vs. one catheter. The three catheter technique led to 50% smaller implant volumes receiving high fractional dose and lower maximum normal tissue doses. Preliminary results on patients followed over one year after HDR shows no fistula and the only stricture seen in the setting of local tumor recurrence. We believe that decreasing the volume of the ‘hot spots’ both in the CTV and normal tissues can lead to an improved therapeutic ratio with lower rates of complications.
学霸图书馆
www.xuebalib.com

本文献由“学霸图书馆-文献云下载”收集自网络，仅供学习交流使用。

学霸图书馆（www.xuebalib.com）是一个“整合众多图书馆数据库资源，
提供一站式文献检索和下载服务”的24小时在线不限IP图书馆。
图书馆致力于便利、促进学习与科研，提供最强文献下载服务。

图书馆导航：
图书馆首页 文献云下载 图书馆入口 外文数据库大全 疑难文献辅助工具