

Iodine-125 implantation in the Treatment of Unresectable Pancreatic Carcinoma with intraoperative ultrasound Guidance

* JUN JIE WANG, M. D. Ph, D, †DIAN RONG XIU, M. D. , *WEI QIANG RAN, M. D. , * WEI JUAN JIANG, M. D, * JIN NA LI, M. D. , * JIANG PING LIU, M. D. , * YU LIANG JIANG, M. D. , # VIKRAM DOGRA, M. D
* Department of Radiation Oncology and †Surgery, *Ultrasound, University of Peking, 3rd Hospital, Beijing, 100083, CHINA, # Department of Rdaiology, University of Rochester Medical Center, New York, 146428648, USA

Purpose: Preliminary assessment of feasibility, efficacy and morbidity of ¹²⁵I seed interstitial brachytherapy for pancreatic carcinoma with intraoperative ultrasound guidance.

Methods and Materials: 27 patients with unresectable pancreatic carcinoma was undertaken interstitial implantation of ¹²⁵I seeds with intraoperative ultrasound guidance. The matched peripheral doses (MPD) of ¹²⁵I seeds implantation ranged from 110Gy to 160Gy. The ¹²⁵I activity of per seed ranged from 0.4 mCi to 0.6mCi. The total number of sources implanted ranged from 10 to 75 (median 38). External beam radiotherapy (EBRT) was given to 6 patients, the total doses of EBRT were 4500~5000cGy, 200~300cGy/f, 5f/w. The intervals between ¹²⁵I seed implantation and EBRT were 3~4 w. 8 patients were received 5-fluorouracil based chemotherapy, 2~4 cycles.

Results: All patients could well tolerated seed implantation. At the time of this analysis, the local-regional controls were 74%, the survival of 1- and 2- year survival rates were 25% and 15% for II/III stage patients, respectively, the median survival was 8 months (95% CI, 5-11). 1-year survival rates were 8.3% for IV stage patients, the median survival was 5 months (95% CI, 3-7). The major late complications included GI bleeding and was seen in three patients. Two patients died from local recurrence after 6 and 8 months, respectively. One patient developed late radiation enteritis and three patients developed chylofation. Overall late complications were seen in 7/27 patients (25.9%) alive beyond 6 months.

Conclusion : ¹²⁵I seed implantation can be successfully used for salvage in patients with unresectable pancreatic cancer by intraoperative ultrasound guidance. Patients with localized advanced pancreatic carcinoma are most likely to benefit from ¹²⁵I seed implantation, at the same time, it can relieve pain but did not show survival benefit for metastatic patients.

[Key Word] ¹²⁵I seed brachytherapy Pancreatic carcinoma Ultrasound

Reprint requests to: Junjie Wang, M.D., Ph.D., Chief of Department of Radiation Oncology, Peking University 3rd Hospital, No, 38 Hua Yuan Bei Road., Beijing, P.R.China.
E-mail: junjiew@263.net

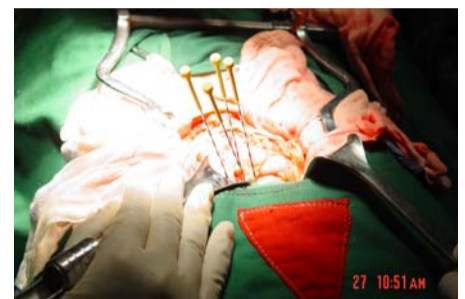


Fig1.The arrangement of needles



Fig.2 Seed implantation

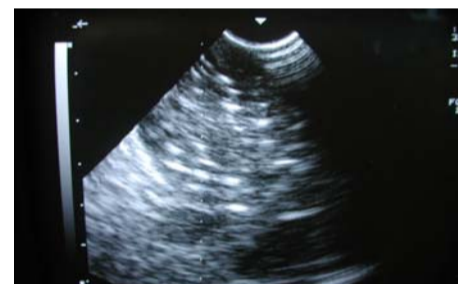


Fig.3.The seed distribution of ultrasound

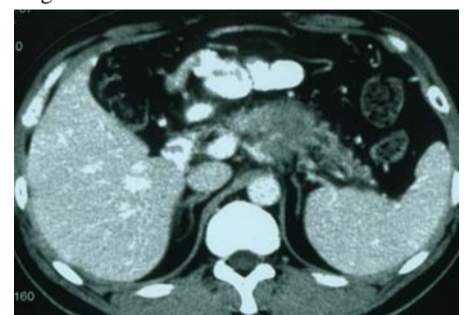


Fig4.Pre-operation



Fig.5. Post-operationm 1 month