Migration of Radioactive Iodine-125 Seeds: Case Report

Wanfu Zhang · Kaiyuan Luo

Received: 12 February 2012 / Accepted: 5 June 2012 / Published online: 19 June 2012
© Association of Surgeons of India 2012

Abstract Iodine-125 kills cancer cells mainly through the release of X and γ ray and was used in the treatment of prostate cancer earliest in the USA and other developed countries. Now it is widely used to handle all kinds of entity malignant tumor. After being implanted in a tumor it rarely wanders to other parts of the body through the blood vessels. Hence, we implanted 50 Iodine-125 particles in the tumor. Three days after surgery, lateral X-ray film of head and neck suggest that 4 Iodine-125 particles left the tumor, two of which migrated to the sphenoid bone, while the other two migrated to the midline below the vortex of the skull.

Keywords Radioactive iodine-125 seeds · Migration

Case Report

A 48-year-old female patient underwent a palliative surgery in our hospital 4 years ago because of

malignant paraganglioma in the left side of the neck. The tumor, which hid in the upper part of her left side of the neck, had gradually increased in recent years. On examination, it was found to be hard, ill-defined, and unmovable with the size of about 6.0 cm×4.0 cm (Fig. 1a). MRI suggested that it was enveloping the left common carotid artery, internal carotid, and external carotid artery. The result of bone scan showed that the tumor had transferred to the ribs and thoracic. She requested us to cure her tumor by radiation therapy through iodine-125 interstitial implantation of particles. The half-life of iodine-125 is 60.1 days (Fig. 1b) and it kills cancer cells mainly through the release of X- and γ -rays, which was earlier used in the treatment for prostate cancer in the USA and other developed countries [1]. Now, it is widely used to handle all kinds of entity malignant tumors [2, 3]. After being implanted in a tumor, it rarely wanders to other parts of the body through the blood vessels. Steinfeld and others became the first ones to report on pulmonary embolism caused by pulmonary migration of lung after

W. Zhang (✉) · K. Luo
Department of General Surgery, Fourth Affiliated Hospital
of Kunming Medical University,
Kunming City 650021, China
e-mail: 920397zwf@163.com

Fig. 1 Patient operation incision (a), Structure diagram of iodine-125 seed (b), Posteroanterior X-ray films of head and neck (c), Lateral X-ray films of head and neck (d)

iodine-125 implantation for early prostate cancer [4]. However, a few reports were given on particle migration after tumor particle implantation of the head and neck.

Hence, we implanted 50 iodine-125 particles in the tumor. Three days postoperatively, lateral X-ray films of the head and neck suggested that 4 iodine-125 particles left the tumor, two of which migrated to the sphenoid bone (Fig. 1c), while the other 2 particles migrated to the midline below the vortex of the skull (Fig. 1d).

References

1. Yu Y, Anderson LL, Li Z et al (1999) Permanent prostate seed implant brachytherapy: report of the American Association of Physicists in Medicine Task Group No. 64. *Med Phys* 26:2054–2076
2. Jiang YL, Meng N, Wang JJ et al (2010) CT-guided iodine-125 seed permanent implantation for recurrent head and neck cancers. *Radiat Oncol* 5:68
3. Mendenhall WM, Morris CG, Amdur RJ et al (2005) Radiotherapy alone or combined with surgery for salivary gland carcinoma. *Cancer* 103:2544–2550
4. Steinfeld AD, Donahue BR, Plaine L (1991) Pulmonary embolization of iodine-125 seeds following prostate implantation. *Urology* 37:149–150