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Commentary

Radiotherapy for benign diseases

Report on a meeting organized by the BIR Radiation Physics and Dosimetry Committee and Oncology Committee held at the British Institute of Radiology, 36 Portland Place, London W1N 4AT, UK on 28 April 1999

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In the UK, radiotherapy for benign disease has rather fallen into disrepute over the past few decades, and many radiotherapists now complete their training with minimal experience in this area. It is sometimes hard to get a feel from the textbooks for what is best practice in these days of evidence-based medicine, and so it was with great interest that a group of us gathered for this 1 day meeting.

The audience was mainly comprised of radiotherapists and radiographers, with some physicists. The scene was set well by Kathlyn Slack from the DoH with a talk on "justification", a key feature of the recently established Ionising Radiation (Medical Exposure) Regulations 1999, which will replace POPUMET (Protection of Persons Undergoing Medical Exposure or Treatment) Regulations 1988, as a result of EU Directive. These regulations will apply to all medical exposures in radiotherapy, diagnosis and research. In practice, justification means that there must be sufficient net benefit of any medical exposure when the total potential benefits are weighed against any detriment to the individual, considering the efficacy of the procedure and available alternatives. Obviously this is particularly relevant in radiotherapy for benign disease. Providing this justification is the responsibility of the professional groups.

Professor Seegenschmiedt from Essen, chairman of the Working Group on Radiotherapy for Benign Diseases in Germany, presented data from a postal questionnaire on patterns of care in Germany. Over 20 000 patients a year receive radiotherapy for non-malignant disease in Germany (population 81 million). These patients have been subclassified into five disease categories including the principal group of degenerative disorders (63%) comprising peritendinitis humeroscapularis, epicondylitis humeri, heel spur and degenerative osteoarthritis. In a subsequent session, Dr Seegenschmiedt presented results summarizing two randomized trials designed to identify the optimum prophylactic treatment for heterotopic ossification. These trials investigated both the timing (pre-/post-operative) and the dose of radiation delivered. Conclusions were that both pre- and post-operative radiotherapy were effective but that 17.5 Gy in three fractions post-operatively was the best schedule for those at highest risk [1].

Dr Spittle gave a comprehensive overview of radiotherapy for benign skin diseases at the Middlesex Hospital. Dr Spittle advised taking referrals only from a consultant dermatologist who is prepared to ensure that all other therapeutic options have been exhausted and only when there is a histological diagnosis. It is her practice to reirradiate once only, but not within a year of the initial course. Different fractionation regimens were recommended for eczema (8 Gy, 4 fractions, 4 weeks, 10–30 kV) and psoriasis (15 Gy, 5 fractions, 5 weeks, 60–100 kV). A range of other conditions were also reviewed, including lymphangioma circumscriptum where ultrasound is recommended to define the target volume, and other radiotherapy responders such as hidradenitis suppurativa, lichen simplex chronicus, keratoacanthoma and keratosis follicularis (Darrier's disease).

Dr Roch-Berry presented his experience of nearly 500 radiation synovectomies using yttrium-90. The activity administered varied according to joint size; knees and hips received 300 MBq; shoulders 200 MBq; elbows and ankles 130 MBq; and wrists 100 MBq. Response rates are all in excess of 75%, with mean durations of symptomatic improvement ranging from 25 months (hips) through 55 months (knees) to 64 months (ankles).

A short presentation on the treatment of epicondylitis, plantar fasciitis and Achilles' tendonitis was given by Dr Mantell. In 30 years experience, 50% of patients exhibited a good response and no incidence of radiation-induced malignancy has been observed.

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Treatment of keloid scars was addressed by Dr Rangoowansi of St George's Hospital. This talk concentrated on delivery technique, treatment planning, adequate wound coverage and dosage (10 Gy single fraction, 60–90 kV).

Experience of "radiosurgery" for benign intracranial disease was presented by Dr N Plowman, with the focus on arteriovenous malformations, meningiomas, acoustic neuromas and pituitary adenomas. The results for obliteration of arteriovenous malformations smaller than 3.5 cm were particularly encouraging, with 80% of 1 cm and 65% of 3 cm lesions being obliterated [2]. The role of fractionated stereotactic radiotherapy, *vs* radiosurgery, is being investigated for some other benign tumours.

Two talks were devoted to the relatively new application of radiotherapy in the prevention of restenosis. Dr Brookes presented on the implementation of peripheral vascular techniques at the Middlesex Hospital, and Mr Stan Bachelor summarized the British Institute of Radiology's intracoronary artery brachytherapy meeting held earlier this year. In both cases radiotherapy appears to decrease the incidence of restenosis by reducing the proliferation of smooth muscle cells. Optimal techniques, including miniature soft X-ray generators, doses and dose rates are still under development. Problems exist with irregular vessel geometry and the time required to give the dose during which distal muscle has to endure significantly impaired oxygenation. Potential lung, cardiac and brachial plexus toxicities should be low but are still a relatively unknown quantity.

Dr Paul Rogers chronicled the use of lens sparing radiotherapy for benign ocular disease, in particular choroidal haemangiomas and age-related macular degeneration. In the latter case, it seems unusual to retrieve useful vision once it has been lost, but it may be important in preventing further deterioration in this relatively common and progressive form of blindness. Also on this topic, Dr Kacperek presented some early results on the use of proton beam radiotherapy, the role of which is currently being assessed in patients over the age of 50 years who do not have diabetes or hypertension.

The final two presentations described the use of radiotherapy in the management of dysthyroid eye disease. Two different techniques were described, one CT-based and the other more conventionally planned, but achieving similar results (>50% improvement and lack of complications).

A recurring theme during the day was the issue of justification, as described by Kathryn Slack in the first lecture. Despite the perceived worry of inducing malignancy in treating a benign disease, not one instance of this was reported during the meeting. Balancing this fear is the fact that many "benign" conditions in fact behave in a far from benign way and may be extremely morbid and unpleasant. These patients deserve our efforts to optimize their treatment and establish a clear-cut role for the place of radiation in their management. An important meeting looking at this subject was held by ESTRO-EORTC in Brussels in October 1999 [3].

References

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3. ESTRO-EORTC meeting on Radiation for Benign Diseases: Current Status and Possible Perspectives; 1999 October 10–13; Brussels. Radiother Oncol 1999; 53(Suppl. 1).