

Stereotactic body radiation therapy or stereotactic ablative radiation therapy (SABR) has revolutionized the way early-stage lung cancer can be treated with radiotherapy. Replacing the conventional 6-7 week treatment course, SABR is delivered over 2-3 weeks, providing a more convenient, resource-efficient treatment, which has improved local control rates and overall survival. The primary role for SABR has been as an alternative to surgery when surgery is declined by the patient or poses too high a risk. The latter pertains to an ever increasing proportion of lung cancer patients, as the elderly are more frequently plagued by other smoking related co-morbidities and poor pulmonary function. In this setting SABR has proven to be an effective and well-tolerated treatment, providing a potentially curative option for those who may have had none previously. Evidence of this is demonstrated by its rapid adoption in clinical practice worldwide and is now recommended by many major bodies as first line treatment in medically inoperable patients.

The development of technology has been the foundation in allowing the safe administration of SABR doses, which rely on precise tumour localization and treatment delivery. Increased access to technologies, such as 4-dimensional computed tomography and cone-beam computed tomography, has allowed widespread use of SABR outside expert academic institutions. Introduction of SABR into a clinical department should be carried out with great vigilance, necessitating appropriate training and expertise, accompanied by a robust quality assurance program.

This book stands as a collection of work from experts in radiation oncology and thoracic surgery, providing an in-depth, thought-provoking overview of this long-standing and important debate on surgery versus SABR for early-stage lung cancer. Its chapters will explore the history, current evidence, clinical experience, controversies and future directions of this complex issue. This book aims to help guide clinicians on the opposing treatment options and their associated benefits, to provide evidence-based, patient-centred solutions for their patients.

The proven success of SABR for medically inoperable patients has led to the questioning of its feasibility in operable patients. Studies have reported SABR outcomes equivalent (and sometimes superior) to surgery, suggesting equipoise between the two treatment options, however a lack of level one evidence prevents this from being clinically accepted. The opening of two randomised control trials provided hope that an answer would be found, but disappointing accrual has led to the premature closing of both. Outcomes of the limited patients that were accrued have now been published and have sparked much debate. Whilst definitive SABR is appearing to be a viable first-line option for operable patients, many of the results in these and other studies on the issue, have been flawed by biases, all of which will be discussed in depth within this book.

Further controversy surrounds the utilisation of SABR for centrally located tumours, the treatment of patients without histological diagnosis, the issue of potential lymph node metastasis and the influence of surgical technique and perioperative care on surgical outcomes. Whilst SABR has been adopted rapidly, caution needs to be taken when interpreting the evidence. Inconsistencies in post-SABR follow-up of patients exist and arise from the difficulty in distinguishing between radiation-induced changes and tumour recurrence. The complex interpretation of post-treatment imaging and its impact on deciding next line of treatment, stresses the need for a multidisciplinary approach, particularly when we are seeing younger, fitter patients receiving SABR.

In an age where populations are ageing and the use of lung cancer screening tools are on the rise, the number of patients who are candidates for SABR will grow. The need for high quality randomized data has never been greater. Every effort should be made to enrol patients on prospective randomized trials. In the meantime, the treatment options need to be discussed in a multidisciplinary approach and thoroughly presented to patients. The choice of treatment needs to remain patient-centred and account for individual patient preferences.

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