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Interventional oncology in the abdomen

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Why a special issue of *Abdominal Imaging* dedicated to Interventional Oncology (IO) in the abdomen? Undoubtedly, for those of us who practice Interventional Oncology, our unique expertise in this field stems from our roots in imaging. Undoubtedly, imaging will continue to play a critical role in the diagnosis of cancer and in the triage of patients to various therapies. Is this enough to convince a busy abdominal imager to devote precious time to learning about IO therapies? For most of us, the answer is likely "no".

Undoubtedly, however, imaging will remain critical for response assessment following IO therapies. As a result, although many readers of *Abdominal Imaging* are unlikely to perform IO procedures, almost all of you will come across post-ablation or post-embolization imaging. You will be asked to render a report or consultation commenting on the response assessment and, at the very least, noting the presence or absence of evidence of viable tumor. Given the unique imaging findings following ablation or embolization, a basic understanding of these therapies and a full understanding of the expected imaging changes following treatment is critical knowledge for the abdominal imager. Thus, this special issue of *Abdominal Imaging* has been assembled to provide a comprehensive state-of-the art review of the most common applications of IO in treating tumors of the abdomen.

Ablation and trans-catheter embolization raise the bar for oncologic imaging. In a sense, this is part of an ongoing evolution of the demands on diagnostic imaging. In the early days of cross sectional imaging, what was expected for diagnosis was detection of tumor, present or absent. Based on availability of ever more sophisticated imaging, surgeons were able to plan more precisely and refine their techniques. This in turn led to additional information expected from the imaging. More than just presence or absence, the information needed is tumor number, size, liver segment distribution (for liver tumors), vascular invasion, proximity to collecting system (for renal tumors for potential partial nephrectomy), etc. Post-treatment evaluation was likewise relatively straightforward. When evaluating imaging following systemic therapy or radiation therapy, response assessment was historically limited to tumor size. For post-surgical assessment, presence or absence of residual or recurrent disease was often sufficient. Now that ablation and embolization have entered the picture, a new interpretation paradigm is necessary. Because tumor is targeted, treated, and left in situ, presence of a residual mass or zone of ablation is often an expected appearance. Reporting the presence of a residual mass alone is not sufficient for response assessment. Furthermore, response assessment by size alone may not be accurate. Indeed, for ablative technologies, a zone of ablation larger than the original tumor may be the goal of therapy. Residual enhancement and its location relative to the entire zone of ablation become important assessment criteria and may guide future procedures. Thus, a new interpretive skill set is currently demanded of the abdominal imager.

Finally, with the numerous therapies available to patients, increasing numbers of patients will be imaged following combination therapies—operative resection of multiple liver metastases with simultaneous intraoperative ablation of residual unresectable small metastases is one example. The similarities, in some cases, of a small post-wedge resection fluid collection and a small zone of ablation, for example, cannot be overstated. The importance of the surgical and interventional history to the correct interpretation of post-treatment findings has never been greater. Thus, the knowledge base required for interpretation of contrast-enhanced MR or CT following oncologic therapies is greater than ever.

These developments are exciting for the field of cancer therapy, and they make oncologic imaging all the more fascinating. It is fitting then that *Abdominal Imaging* dedicates a special Feature Section to Image-Guided

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Interventional Oncology. This issue brings together state-of-the-art reviews on percutaneous therapies in the liver, kidney, and adrenal as well as trans-catheter therapy in the liver, with each article co-authored by one or more internationally recognized experts. Given the importance of imaging for assessment of treatment response, a dedicated article on the imaging findings following IO therapies is included. The goals of this issue are to provide you with an overview of the more common IO treatments for abdominal tumors and to review the imaging findings, benign and malignant, that can be expected following ablation or embolization.

I extend my sincere gratitude to all the authors who have generously contributed their time and expertise in the preparation of these excellent articles. I also thank Dr. Morton Meyers for the opportunity to provide my input as editor of this issue. I hope all of you enjoy this issue as much as I have enjoyed my role as Guest Editor!