Preoperative Embolization of Hypervascular Tumors

The resection of hypervascular tumors, particularly renal cell carcinoma (RCC), presents a distinct challenge because the procedure can be associated with large intraoperative blood losses. Renal artery embolization, introduced in the 1970s, has played an important role in the management of unresectable RCCs. In addition to use with tumors that are unresectable, embolization can be performed prior to nephrectomy. It is thought that by decreasing vascularity and inducing the formation of edema adjacent to the infarcted kidney, embolization may facilitate a subsequent surgical intervention. Significant improvements in blood loss have been observed following alcohol embolization of large RCCs prior to nephrectomy. Osseous metastases from RCC behave in a similar fashion to the primary malignancies. Hypervascular metastases to both the axial and appendicular skeleton can be embolized to reduce blood loss during subsequent surgical intervention. Spinal metastases often present with intractable pain, neurological symptoms, and/or pathologic fracture. Primary treatment modalities include radiation therapy and surgical resection to achieve local tumor control and palliation of symptoms as well as preserve spinal stability and nervous tissues.