Introduction: Updates in Surgical Oncology

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The field of surgical oncology has undergone transformative evolution in the past decade, reflecting the impact of multidisciplinary cancer research and redefinement of the possibilities of surgical care. Procedures have become less invasive, safer, and more accurate with new technology such as robotic approaches and expanding uses of minimally invasive surgeries. In terms of management, we are understanding how to de-escalate surgical oncology care. There is an understanding that more may not be necessarily better with the rise of modern, powerful therapies such as immunotherapies. For example, cancer types such as rectal cancer are now being treated with chemotherapy and radiation alone if these therapies are able to achieve complete pathological responses.[1] At the same time, we are also understanding when to escalate surgical oncology care. For example, the use of regional therapies in advanced, unresectable cancers have allowed expanding opportunities to convert patients who were once deemed inoperable and uncurable over to resectable and curable states.[2,3] With this special issue in surgical oncology, we hope to share some of the advances and evolving treatment options for patients in the state of Rhode Island. Below is a quick synopsis of what is to come in this special edition on updates in surgical oncology.

Once considered to be systemic disease, colorectal liver metastases have evolved to be considered potentially curable disease. Local liver therapy in the form of liver resection has resulted in 10-year survival of 22 to 26% in the late 1990s to early 2000s.[4,5] Survival rates of colorectal metastases continues to improve with one estimate demonstrating median overall survival of 22.6 months for patients diagnosed between 2004 and 2012 to 32.4 months for those diagnosed between 2016 and 2019, helped by powerful modern chemotherapy and the rise of immunotherapy.[6] With the ability to achieve longer survival rates, multiple liver-directed therapies have been highlighted as an adjunct to systemic therapy. Numerous options now exist for patients, with opportunity to personalize treatments to optimize every patient's individual outcome. To help us grasp an understanding of various treatment options, **CROCKER ET AL** cover a wide range of treatment armamentarium available in the treatment of patients with colorectal liver metastases. These range from trans-arterial chemotherapy, trans-arterial radioembolization, thermal tumor ablations, and hepatic artery infusion chemotherapy pumps. The authors highlight data behind each of these modalities and certain indications for their use, and help the readers to appreciate the therapies that are available for patients in Rhode Island. Another regional therapy utilization in surgical oncology is with the surgical management of peritoneal carcinomatosis – intraperitoneal chemotherapy. Peritoneal carcinomatosis remains a challenging pathology with poor patient prognosis and symptoms. Intraperitoneal chemotherapy has been around since 1950s but it is underutilized due to lack of awareness and limited access to hyperthermic intraperitoneal chemotherapy (HIPEC) experts.[7] With the treatment being readily available in Rhode Island, **WILSON ET AL** provide a nice overview of the treatment, appropriate patients who may benefit from the treatment, and its impact on survival and patients' quality of life to improve our awareness and consideration of this important treatment modality.

Then we turn to three manuscripts on the opposite spectrum to highlight new technologies that have allowed for less invasive approaches. A minimally invasive surgery (MIS) approach is increasingly utilized for liver surgeries. With the robotic platform, further growth in MIS for liver is anticipated. **TALUKDER ET AL** discuss some of the potential benefits of the MIS approach for patients with primary and secondary liver malignancies, including its association with lower complications, shorter length of stay, and perioperative mortality that has dropped below 2% in modern times. An overview of the technologies that has helped with the safety profile of liver surgeries are discussed, including the use of Indocyanine Green and intraoperative ultrasound to delineate tumor and to facilitate parenchymal-sparing resections, which has helped decrease the rate of post-hepatectomy liver failure and postoperative recovery. Ablation techniques including novel Histotripsy treatment are also discussed to round out the authors' discussion on MIS approach to primary and secondary liver cancers. This theme of minimally invasive approaches is extended into pancreatic surgeries by **WILSON ET AL**. The authors provide a comprehensive review addressing the indications for pancreatic surgeries, traditional techniques involved in pancreatic surgeries and discuss the rise of minimally invasive pancreatic surgeries as well as other emerging techniques and exciting technological developments in the field of pancreatic surgery.

Lastly, **LI ET AL** introduce an emerging technology to treat benign symptomatic thyroid nodules. Radiofrequency ablation (RFA) may help shift some surgical resection to minimally invasive, low-risk alternative. RFA has been shown to be a cost-effective alternative with excellent results in reducing thyroid nodule volume, improving symptoms, and cosmetic appearance. The authors nicely outline patient selection criteria and one's eligibility for this procedure. The special edition on surgical oncology ends with providing an interesting epidemiology of cancer in Rhode Island. Using Cholangiocarcinoma as a case study, **LIGHTFOOT ET AL** provide a nice epidemiological overview of cancer risks in Rhode Island and provide an interesting insights into the relationship between environmental factors in Rhode Island and cancer. This article highlights growing interest in recognizing cancer as a public health and environmental issue. It also highlights oncology as a true multidisciplinary field where surgical oncology is one component of many others. As the field of surgical oncology evolves, it is evolving together with other cross-linked disciplines.

The ancient Greek philosopher, Heraclitus, famously stated, "there is nothing permanent except change." The field of surgical oncology is constantly transforming, but the fundamental goal remains true – we continuously seek to find new and innovative ways to address cancer by physical intervention.

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