Annotated Bibliography

Ablative Oncology Center (n.d.) Cryoablation for kidney cancer. Retrieved from http://www.ablativeoncology.uci.edu/more-kidney.asp

This article discusses what cryoablation is, how it works and some advantages of it compared to open surgery. Cryoablation uses cold energy to destroy cancerous tissues. This is done by inserting small probes through the skin and into the tumor. By inserting the probes through the skin, there are only small lesions left from the procedure, unlike a more invasive procedure. Once the probes are inserted, pressurized gas is pumped through to create an ice ball at the tip of the probe which is -100 degrees C. A few advantages of this procedure are the small lesion made, less pain and a rapid recovery time in comparison to open surgery.

A strength of this article is that is discusses advantages of the procedure in simple terms. Other articles seem to go in very tiny medical details on the advantages where this article states the major advantages. A weakness of this article is that it doesn’t talk much about why the procedure is performed. It only discusses the procedure itself.

Cernic, S., Marrocchio, C., Ciabattoni, R., Fiorese, I., Stacul, F., Giudici, F., Rizzo, M., & Cova, M. A. (2021). Percutaneous CT-guided renal cryoablation: technical aspects, safety, and long-term oncological outcomes in a single center. *Medicina (Kaunas, Lithuania), 57*(3). https://doi-org.misericordia.idm.oclc.org/10.3390/medicina57030291

This article uses a qualitative study to examine how effective and safe CT guided cryoablation procedures are. This study has also proved that cryoablation procedures could be performed without any major complications. This is important because renal cell carcinoma is one of the most common renal cancers and their incidence rate has only increased overtime. The study included the treatment of 174 renal tumors by two interventional radiologists who both have more than 30 years of experience.

The strengths of this article are that it discusses the occurrence of renal cell carcinoma which shows why this is an important procedure. Another strength is that it is proving that the procedure is very effective and safe. Also, CT imaging was used within this article to show the cryoprobe inserted into the tumor which is useful in my research. A weakness of this article is that it focuses a lot on the actual study and not completely on the outcome. This information will still be useful to me when showing the importance and effectiveness of this procedure.

El- Feky, M. (2021). Renal cell carcinoma. *Radiopaedia*. Retrieved from Renal cell carcinoma | Radiology Reference Article | Radiopaedia.org

This article discusses the epidemiology of those who have renal cell carcinoma. Renal cell carcinoma is a malignant adenocarcinoma that occurs within the renal tubular epithelium. Renal cell carcinoma is the most common malignant renal tumor and its incidence rate has increased due to incidental findings. The symptoms of this carcinoma are usually presented in patients who are 50-70 years old. The risk factors involved are smoking, dialysis related cystic disease, hypertension, obesity, after a renal transplant or if one has treatment with cyclophosphamide, a chemotherapy agent. Its presentation is usually blood in the urine, abdominal pain or a palpable mass located in the abdomen.

The strength of this article is that it discusses all the factors of renal cell carcinoma. This article discusses where it is located, age it usually occurs, why it may occur and its symptoms. A weakness of this article is that it discusses how to diagnose the condition but it does not go into any detail on treatment for the cancer.

Hayek, G. & Kastler, B. (2020). Interventional radiology for treatment of bone metastases. *Cancer radiothérapie 24*(5). 374-378.

This article discusses the numerous ways one could treat bone metastases in interventional radiology. Treatment includes minimally invasive procedures such as cryoablation. Cryoablation is generally used when the tumor is close to neurological structures. This is because cryoablation uses cold temperatures to freeze the tumor which will not damage surrounding tissues like high temperatures will do. Another benefit of cryoablation is that it is less painful than when heat is used for treatment since this is only performed under local anesthesia. Also, once an ice block is formed around the probe, it can be seen through CT scan which allows for precise placement of the probe within the tumor.

A strength of this article is that is shows a few benefits of cryoablation. There are many ways to treat a tumor in interventional radiology but here one could see the benefits of cryoablation. The weakness of this article is that it focuses on ways to treat bone metastases rather than renal tumors which will be my focus. A lot of the information in this article is not relevant to my topic but the parts that are relevant discusses important information.

Long, B. W., Rollins, Jeannean Hall., & Smith, B. J. (2019). *Merrill's atlas of radiographic positioning and procedures.* 14th ed. Vol 3. St Louis, MO.: Elsevier

Page 317 of *Merrill’s Atlas of Radiographic Positioning and Procedures* discusses what interventional radiology is and its purpose. Interventional radiology uses a therapeutic treatment to interfere with the disease process while reducing one’s recovery time and medical costs. Interventional radiology consists of two processes that are used in conjunction. The first being the medical side of the procedure. This process is when a radiologist uses devices such as wires and catheters to improve a patient’s condition. The second part of an interventional radiology procedure is the use of radiography to help with guidance during the procedure and documentation of the medical side of the procedure.

The strengths of this book are that it discusses what interventional radiology is in a simple and effective way. This will be used to allow those who may be unfamiliar with interventional radiology to understand its purpose and why it is important. A weakness of this book is that it does not discuss cryoablation specifically. This would have been helpful because the book is very good at explaining difficult material in simple terms.

Mayo Clinic. (2020). *Cryoablation for cancer*. Retrieved from https://www.mayoclinic.org/tests-procedures/cryoablation-for-cancer/about/pac-20385216

This article states that cryoablation is a treatment in interventional radiology that is used to kill cancer cells by using extremely cold temperatures. This route is normally used when one cannot have surgery. For this procedure, a cryoprobe is inserted into a cancerous tumor and a gas is pumped through the probe to freeze the tumor. Once frozen, the tissue is then thawed and refrozen. This occurs a few times within a single treatment session. Not only could this be done to kill cancer cells, it could also relieve one’s pain or other symptoms caused by the tumor.

Strengths of this article are that it is a very reputable source and it explains some specifics of cryoablation in simple terms. It discusses the numerous cancers this treatment could be used on and why it is done. A weakness of this article is that although it has a lot of good information, it is very short.

Yakkala, C., Denys, A., Kandalaft, L. & Duran, R. (2020). Cryoablation and immunotherapy of cancer. *Current Opinion in Biotechnology*, *65*. 60-64. https://doi.org/10.1016/j.copbio.2020.01.006

This article discusses what cryoablation is, how it can be performed and what occurs while the procedure is happening. It states that cryoablation treatment is a hydrothermic modality used to annihilate cancerous tumors. When the tumor is destroyed, there is a release of antigens within this location which triggers an immune response. Since the tumor is left within the body after annihilation, this also allows for tumor antigens to be available which ensures there will be immunity against the tumor antigens.

The strengths of this article are that it says what cryoablation is and why it is done. Also, this article has a graphical abstract attached to it to show the tumor forming and what cryoablation looks like when it is done. This is a good aid to help those who are visual learners. A weakness of this article is that it does not go into much detail about cryoablation.

References

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El- Feky, M. (2021). Renal cell carcinoma. *Radiopaedia*. Retrieved from Renal cell carcinoma | Radiology Reference Article | Radiopaedia.org

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