

## Introduction

Radiation therapy uses high energy rays or particles to kill cancer cells. Goal of radiation therapy treatment is to deliver a dose of radiation precisely to a tumor, while limiting radiation dose received by normal, noncancerous tissues.

## External Beam Therapy

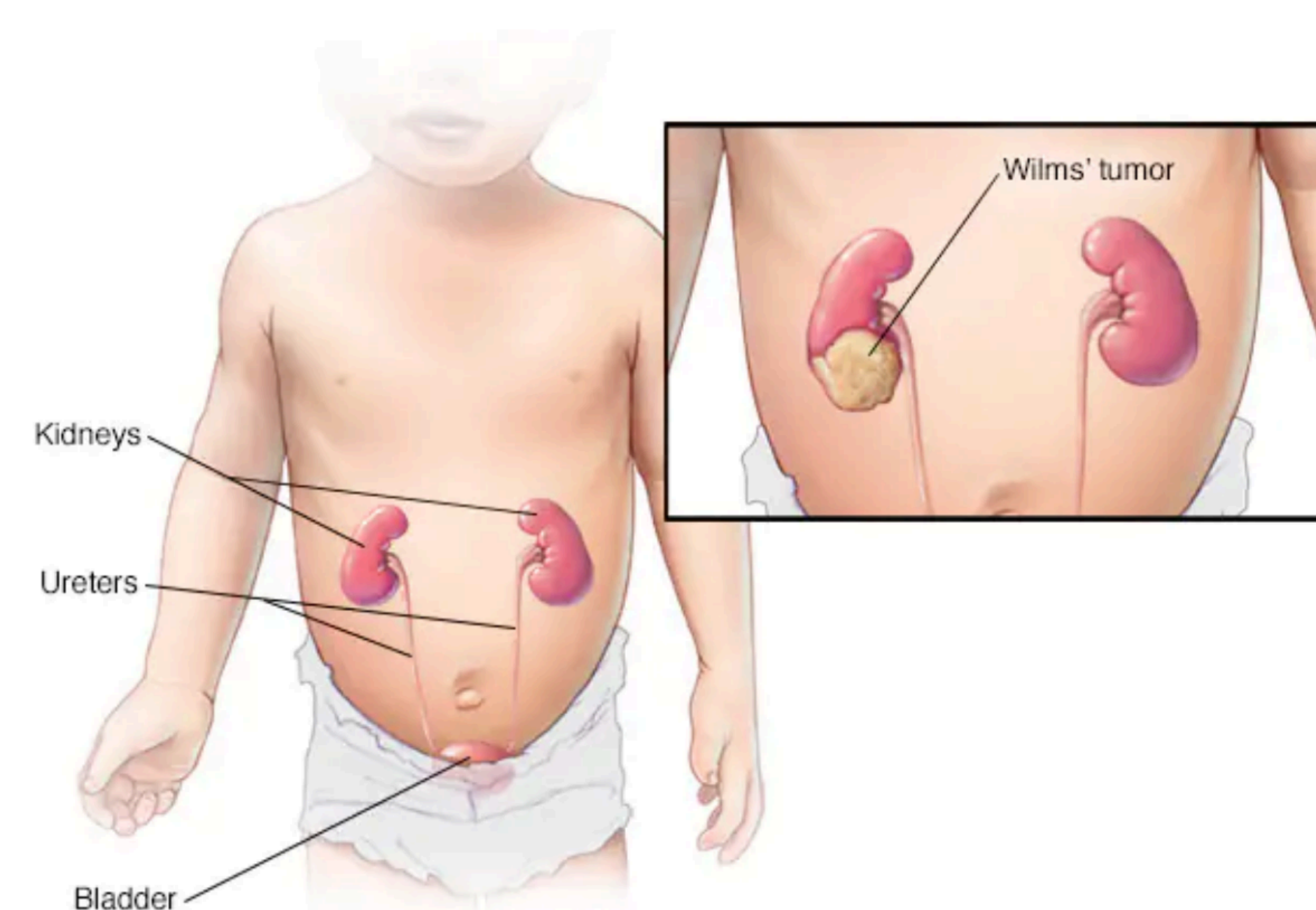
- Delivery of radiation to a patient from a unit such as a linear accelerator whereby radiation enters patient from external surface of the body.
- Patient receives radiation from a source outside the body that is focused onto the cancer.
- Used for more advanced Wilms tumors (Stages III, IV, and V). (Long, Rollins, & Smith, 2019, p. 432).

## Cancer Severity

- Stage I:** Tumor limited to kidney and completely resected with no residual microscopic disease.
- Stage II:** Tumor grown outside the kidney, but is excised completely.
- Stage III:** Residual non-hematogenous spreading of tumor confined to the abdomen.
- Stage IV:** Hematogenous spreading of either lungs, liver, brain, or bones, or to lymph nodes.
- Stage V:** Tumor found in both kidneys at the time of diagnosis.

## What is Wilms Tumor?

- A rare kidney cancer that primarily affects children.
- Also known as nephroblastoma, it's the most common cancer of the kidneys in children.
- Most often affects children ages 3 to 4 (Pater et al., 2020, p. S1).
- Symptoms include swelling & pain in abdomen, palpable mass in abdomen, fever, & hematuria (Pater et al., 2020, p. S1).

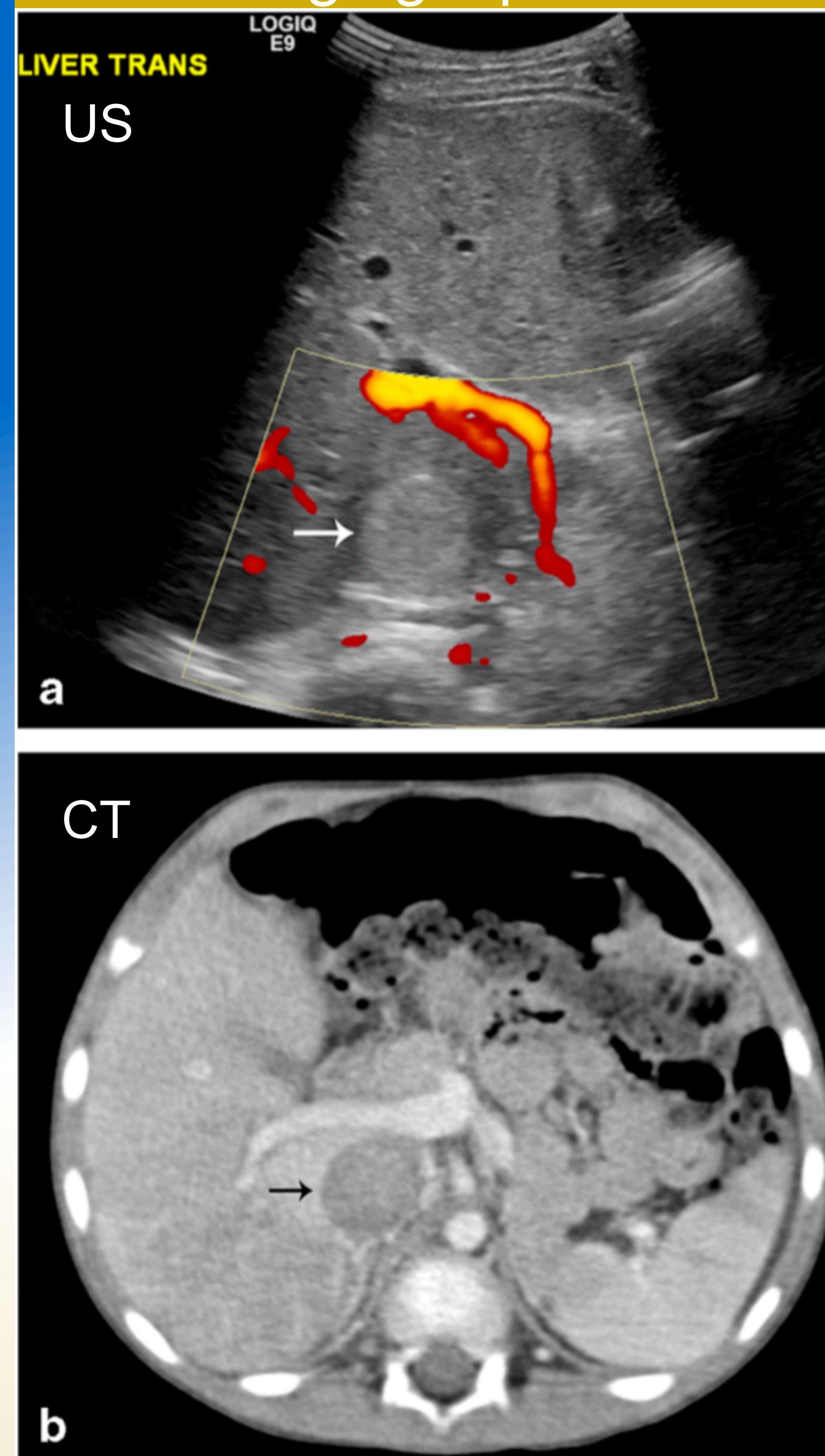


- Image showing urinary system which includes kidneys, ureters, bladder & urethra.
- Responsible for removing waste from the body through urine (Mayo Clinic, 2017, para. 2).

## Contributing Factors

- Poor patient outcomes depend on:
- Late presentation
  - Malnutrition and drug toxicity
  - Limited resources
  - Culture and lack of education
  - Limited reporting (Cunningham et al., 2019, p. 49).

## Imaging Options



“Palpable left-side abdominal mass in 4-year-old girl. Mass arising from left kidney on sonogram.  
 a.) Transverse sonographic image shows mass (arrow) distending the intrahepatic inferior vena cava, compatible with tumor thrombus.  
 b.) Confirmed on staging CT. Extension of tumor thrombus into intrahepatic inferior vena cava (arrow) a safe primary nephrectomy.”  
 (Servaes, Hoffer, Smith, & Khanna, 2019, p. 1443).

## Treatment Options

- Stage I:** Surgery completed to remove tumor along with entire kidney and nearby structures.
- Stage II:** After surgery, standard treatment is chemo with actinomycin D and vincristine.
- Stage III:** Treatment is usually surgery if it can be done, followed by radiation therapy and chemo.
- Stage IV:** Treatment is usually surgery if it can be done, followed by radiation therapy and chemo.
- Stage V:** Treatment for children with tumors in both kidneys is unique for each child, although it typically includes surgery, chemo, and radiation therapy at some point. (American Cancer Society, 2018a&b).

## Conclusion

- The current survival in patients with WT is high (90%).
- Most common sites of recurrence are lungs (58%) & abdomen (29%).
- Further studies should be highlighted on how to use chemotherapy & radiotherapy under more accurate risk-stratified strategies and decrease late effects of surgery.
- Surgeons must be more focused on how to maximize preoperative & postoperative treatment possibilities for achieving optimal results of patients with WT (Wang et al., 2019, p. 3).