

[MUSIC PLAYING]

- ERIC MOORE:** Papillomavirus-induced tumors hit a very healthy, young patient population. Nobody suspects that they have a tumor. The first thing to pass on is if a patient has a lump in the neck for a long time, don't ignore it. Don't think it's something common like a virus or an infection. Think that they might have a tumor and do the appropriate diagnostic tests.
- KATHARINE PRICE:** For our practice here at Mayo Clinic, probably 70% of the cancers that we see are viral-associated cancers. If you look at the graphs of the number of cases per year that have been going up, it is exponential. And in fact, human papillomavirus oropharynx cancer is now the eighth most common cancer in men in the United States, and those numbers are continuing to go up. So it's very significant.
- DANIEL MA:** Oropharynx cancers used to be related to heavy smoking and heavy drinking. But in recent years, we've found that the majority of our patients are young, otherwise healthy nonsmokers, and they tend to have this disease because of the human papilloma virus.
- KATHARINE PRICE:** So treatment for HPV cancers is really evolving. And when it was first recognized that they were causing the cancers, we were really still treating them exactly like the smoking- and drinking-related cancers. And now there's research going on here at Mayo Clinic, but also around the world, around the country, looking at trying to treat them differently because truly it's a different disease. So from every standpoint-- biologically, what causes it, how they respond to treatment-- everything is totally different from the smoking cancers.
- ERIC MOORE:** We have realized that we do not need to prescribe the same exact treatment for every single tumor like we've done historically, that we can cone down some of that treatment, giving just enough treatment to get rid of the tumor and not going a step beyond that much treatment because it's going to have lifelong side effects.
- DANIEL MA:** One of the clinical trials that we had available for certain patients, for example, with this type of HPV-related cancer would be to do a less invasive surgery first with a transoral robotic technique. And if the patient is a good candidate after we review your case in our multidisciplinary tumor conference, we will see if you qualify for a trial where you'll receive half as much radiation over two weeks, rather than the six weeks of radiation therapy that could lead to swallowing issues and dry mouth. That's a very successful ongoing trial, and that's something that would be available that's unique to the Mayo Clinic.
- ERIC MOORE:** Most surgery for tumors involves understanding where the boundary of that tumor is and removing the entire thing. We call that narrow margin surgery. You can only do narrow margin surgery if you have the help of a pathologist who's very good at reading that pathology and saying, that's normal tissue. You're around that tumor. Or no, that's tumor tissue. Even though it looks normal to your eye, you need to go further. Frozen section pathology was invented at the Mayo Clinic 100 years ago, and we utilize it every single day for every tumor that we take out.

**DANIEL MA:** We have not only the most state of the art radiation techniques where we can deliver very focused X-ray techniques, but we also have proton beam. There are a whole number of steps not only in defining the area where you need to treat in the areas you don't want to treat, but also things such as, is the patient setup precisely every day so that we can deliver the same type of radiation treatment? We have tolerances, for example, that the patient needs to be within one to two millimeters of where they were set up when they came in for treatment planning.

**KATHARINE PRICE:** Collectively, we just have a huge amount of knowledge and experience with head and neck cancer. And so we can appreciate when something is a little bit off, what the nuances are. We would love for every patient we see here to be treated here, but sometimes that's just not possible. There's still families and jobs and things like that. So we also coordinate all the time with physicians at outside institutions.

**DANIEL MA:** One of our strengths, as well, has been getting patients and quickly, getting all their care coordinated quickly, and having their care initiated quickly.

**KATHARINE PRICE:** If somebody comes here and they have a suspected head and neck cancer, we can biopsy them and do scans and have a multidisciplinary consultation within just a couple of days, which potentially could take weeks or months outside.

**DANIEL MA:** Exciting frontiers for head and neck cancer is really pushing the envelope to improve and maximize quality of life.

**KATHARINE PRICE:** The biggest thing right now going on in medical oncology would be the field of immunotherapy. So this is the idea of trying to help the body fight the cancer itself. This is not a new concept. This has been around for a while, but we actually you know have drugs that have been approved to do this. And that's just the tip of the iceberg.

**ERIC MOORE:** Genetic analysis and type tumors is becoming a very important individualized medicine topic. One person's tumor is not exactly like the other. They all have sort of a unique symbiotic or pathologic relationship with that patient's body. And so if we can look at not only the tumor cells, but look at, what do the genetics have? What happened to the cellular sort of genetic design here to make this happen?

**DANIEL MA:** The disease response is much better to radiation and chemotherapy. It responds quite well to surgery, and it's a disease that requires a new approach to both cure and also have very extended and improved quality of life.