IRINA BANCOS: Well, first, it's important to know that pituitary tumors are quite common. At least 10% of us have a pituitary tumor. And most of these are nonfunctioning. However, in the minority which are producing some sort of a pituitary hormone, one third of those may produce growth hormone.

JAMIE VAN GOMPEL: Growth-secreting tumors are functionally-active tumors, which means that they have something that's being made that's causing symptoms. In this particular circumstance, a lot of us are very aware of all the symptoms that growth-hormone-creating tumors can cause, but just to say what's most important-- the patient has a lot of pain, long term, from the soft tissue swelling that's consequently caused by the elevated IGF-1, and, also, a ventricular size increase, which ultimately leads to diastolic heart failure in these patients.

IRINA BANCOS: Growth hormone stimulates IGF-1 production from the liver, which is insulin-like growth factor 1 hormone. And then, in turn, IGF-1 goes to all the tissues in our body and leads to a syndrome which we call acromegaly.

Now, acromegaly is, many times, missed because the changes of this growth hormone hypersecretion or acromegaly are extremely slow and progressive and very mild, so much so that even family members and a person himself or herself would miss acromegaly for 10, 15 years or longer.

What is acromegaly? Acromegaly is a syndrome characterized by soft tissue growths and swelling and by metabolic changes. So patients would develop coarse features of their face, puffiness of their arms and legs. They would complain of maybe increased sweating, increased skin changes, such as nevi or other skin lesions. Then people may have diabetes mellitus or hypoglycemia.

It's frequent for us to hear that a person would need to change their ring size because of the enlargement of the soft tissues and the enlargement of the bone or a formation of what we call osteophytes, bony growths. The shoe size change is another frequent complaint. And, also, if a person would have a good dentist, a good, observant dentist, tooth spacing is another very common complaint in acromegaly.

We are lucky to diagnose acromegaly very early in stages, whenever someone would be incidentally discovered with a pituitary tumor, and, in that situation, we would look for hormonal hypersecretion, even without symptoms. And if we would find IGF-1 being high, we would probably proceed with further workup, confirm early diagnosis of acromegaly, and possibly cure the person before acromegaly fully develops. But, unfortunately, it does not happen frequently enough.

JAMIE VAN GOMPEL: The tumors are very complicated in treatment and oftentimes require multimodal therapy. And once the tumor is recognized-- especially if it's a complicated tumor-- that it gets to a treatment team that works commonly together in a collaborative across fields.

And I think that's what Mayo Clinic offers the best. Everything is under one roof, in terms of, you know, do they need somatostatin analog? Do they need other types of medications? Do they need more than just pituitary surgery? Do they need a craniotomy with some type of cavernous sinus exploration?

And, on top of that, the radiation therapies, do they not just need Gamma Knife or stereotactic radiosurgery? Do they have proton beam or something else?

All those things are very critical to the treatment of these patients. And, also, to add, the preoperative imaging and understanding where this tumor is and is not is very critical. And I think the value of Mayo is that it's all under one roof, and we all talk about the patient's needs and how we can do the best for that patient.

IRINA BANCOS: We have ongoing research in acromegaly, which is a collaboration between endocrinologists, pituitary neurosurgeons, and now pathologists. The research projects vary throughout the years and usually involve diagnostics, pathology indices, and management.

JAMIE VAN GOMPEL: There is a lot of active research going on with these particular tumors. One of them is something that we've been working actively on and looking at-- it's called granulated-- but if they're loosely or densely-granulated tumors and what the impact to treatments may be. Because a loosely-granulated tumor may respond better to medications, and a densely-granulated tumor may respond better to radiation. And those little nuances are important.

The medications that are becoming available to suppress the active side of the tumor, those change and are constantly undergoing different protocol changes. And trials are available here for those types of things as well.