Novel Surgery Removes Tumor, Rebuilds Face And Jaw

Using a novel surgical approach, it's possible to rebuild a functional lower jaw and mouth, and preserve a patient's ability to eat and speak after removing an invasive facial tumor, according to a new report from Henry Ford Hospital in Detroit. This case study not only documents a successful surgical technique to create a fully functional lower jaw, but also reports the rare occurrence of a bone cancer (osteosarcoma) that spread from the patient's right femur to his jaw bone.

Most commonly, osteosarcoma is found in the long bones of the leg and does not spread to other parts of the body.

"The bone tumor involved nearly all of his jaw bone, lower lip, chin, neck skin, tongue and both cheeks, approximately the lower third of the face and upper half of his neck," says senior study author Tamer A. Ghanem, M.D., Ph.D., director of the Head and Neck Oncology & Microvascular Surgery Division and division head of the Department of Otolaryngology-Head and Neck Surgery at Henry Ford Hospital. "We had to think outside the box to not only safely remove the tumor, but to allow for optimum functional outcome."

Dr. Ghanem will present this unique case study this weekend at the poster session for the American Academy of Facial Plastic and Reconstructive Surgery annual meeting in Washington, D.C. The case is centered on a 21-year-old African American male with a history of osteosarcoma, the eighth most common childhood cancer. It affects five million patients under the age 20 and about 500 adults ages 15-30 each year in the U.S.

The patient's osteosarcoma spread to his jaw bone about three years after the initial diagnosis. The facial tumor soon grew to nearly 10 lbs. of tissue and bone, making it difficult for him to speak and eat. The patient required a feeding tube. Only three months after the surgery, the patient was able to talk and eat without assistance.

Prior to coming to Henry Ford Hospital, the patient underwent multiple treatments including mandible resection, radiation, chemotherapy and cryosurgery at another institution. All treatments were unsuccessful. Dr. Ghanem and his colleague Francis Hall, M.D., devised a plan that would not only surgically remove the tumor and oral tongue, but rebuild the lower third of the patient's face – all during a 20-hour surgical procedure.

The surgeons performed a near total mandibulectomy (surgical removal of the bone from the lower jaw), and removal of the tongue, mucous membrane from the inside of both cheeks and lower lip. Dr. Ghanem performed the complex reconstruction of

the face and jaw using dual microvascular free flaps from the fibula and shoulder areas.

"The reconstruction involved bone and skin transplanted from the patient's left leg, and a tissue complex from his shoulder blade area with its feeding blood supply compromised of multiple islands of skin and muscles to reconstruct all of the tissues," says Dr. Ghanem.

The subscapular free flap (skin and muscle from the shoulder) is a versatile donor system that offers distinct advantages in the reconstruction of head and neck defects. The shoulder's soft tissue offers mobility, while this area also has a diverse range of skin, bone and muscle available for use in reconstruction of massive facial defects.

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