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Article: Porter Head & Neck Cancer

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How one doctor helps rebuild lives

By Suzy Devers

In the before photos, your eyes gravitate to the shocking disfigurement. In the after photos, you see a face and a spirit restored. Relying on years of experience and finely honed skills, Dr. John Campana deftly rebuilds and sews people's lives back together.

That Campana is an avid mountain climber seems a fitting metaphor for his chosen calling: it's high stakes, presents a formidable challenge, requires enormous skill and offers extraordinary rewards.

Campana is an otolaryngologist (pronounced oh/toe/lair/in/goll/oh/jist) who specializes in head and neck cancer. Otolaryngologists are trained in the medical and surgical treatment of patients with diseases of the ear, nose and throat (ENT), and related structures of the head. Unlike many physicians, otolaryngologists are trained in both medicine and surgery.

Porter Adventist offers specialized head and neck cancer program

As the Medical Director of the head and neck cancer program at Porter Adventist Hospital's Cancer Care Center, Campana treats patients who suffer from some of the most debilitating and disfiguring forms of cancer.

Head and neck cancers include skin cancer and cancer that arises in the head and neck region, such as the lymph nodes, nasal cavity, sinuses, lips, mouth, salivary glands, throat and larynx (voice box). Many head and neck cancers are attributed to lifestyle factors, including smoking, drinking alcohol, chewing tobacco and excessive sun exposure.

Campana's challenge is to remove the cancer, while maintaining (or restoring) as much of the patient's function and appearance as possible. "A lot of the work I do crosses over into plastic surgery," explains Campana, who is also a facial plastic and reconstructive surgeon.

Restoring appearance

One way Campana improves the patient's appearance after the cancer is removed is

through the use of skin flaps. Flaps, which are often harvested from the patient's back or leg, are sewn into place after the arteries and veins are restored.

Aided by a microscope, Campana connects the blood vessels from the harvested tissue to matching arteries and veins at the site. "Without microvascular surgery, the flap can fail from lack of oxygen," Campana explains.

Skin flaps are also created by slicing a segment of skin near the surgical site and pulling it over the damaged area. "The skin has enough laxity to easily stretch," Campana explains. He used this technique to cover a deep wound from a malignant melanoma on a beautiful young woman's face. After the surgical site healed, the woman's entire face seemed transformed.

Restoring function

Campana points out that head and neck surgery presents unique challenges because the surgeon may need to remove a critical structure, such as a section of a patient's jaw, in order to eliminate all the cancer. This can threaten the patient's ability to chew, swallow and speak.

Campana uses bone grafts harvested from the leg, hip, arm or back to rebuild critical structures, such as the jawbone, so the patient can function again. The bone graft is held in place by an ultra-thin titanium bar. Over time, the grafted bone will knit together with the established healthy jawbone.

Using computer models

Occasionally, Campana relies on a technique, called Stereolithography, to create a 3-D model used to rebuild parts of a patient's skull. For example, to create a model of a jaw, he sends a CT scan of the jaw to a medical modeling lab, where it is digitized and interpreted by advanced software. The software then creates a virtual 3-D model of the patient's bone structure. After the virtual model is created, the digital file is sent to a rapid prototyping machine.

The machine builds the physical model one thin layer at a time by using a liquid photopolymer and a laser. Each layer is fused upon the layer below, creating a highly-accurate anatomical model. Campana uses the physical model to determine the exact size and shape of the bone graft needed to rebuild the patient's jaw and to fit the titanium rod that will hold the graft in place.

Making a difference

One look at the dramatic before-and-after photos and you'll see the transformative power of Campana's work. A large tumor becomes a subtle discoloration along the hairline. A disfigurement from a malignant melanoma becomes a faint mark hidden in the shadows just under the nose. A radically deformed jaw becomes a strong, attractive jawline. Not

only does Campana's work save lives, it also makes those lives worth living.

To learn more about head and neck cancer, visit www.entnet.org.

Callout for image of jaw:

Computer modeling: Dr. John Campana relies on computer-generated 3-D models to help him rebuild a patient's jaw damaged by cancer.