MELANOMA

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tumor to the bloodstream, which can carry them to other sites where they can form new tumors. The rest stops on this highway are tiny bean-shaped structures called lymph nodes, which gather and filter the lymph fluid that carries foreign objects like bacteria, viruses and cancer cells.

Studies have shown that patients whose cancer cells have entered their lymph nodes have a much worse potential for survival. Melanoma kills 7,400 Americans each year, more than one person each hour. The average five-year survival rate for melanoma patients is about 89 percent. But once the cancer spreads to the lymph nodes, the survival rate drops to a range of 13 percent to 70 percent, depending on how many lymph nodes contain melanoma cells.

For years, surgeons removed entire sections of the lymphatic system of many patients with melanoma, just in case the cancer had spread. But only about 10 to 20 percent of these patients actually turned out to have cancer cells in their lymph nodes – so many had undergone the invasive and potentially dangerous surgery for no real reason. As a result, studies of patients who had a node dissection, as the operation is called, didn't have a better chance of survival.

ACCURATE MAPPING

Sentinel lymph node mapping can determine exactly which patients need node dissection and further treatment such as interferon and radiation. It allows doctors to see which lymph nodes drain the cancerous region, and to determine if cancer has entered the lymph system yet.

The approach starts with an injection of a radioactive tracer and blue dye near the melanoma site. After giving the injection time to collect in the lymph node, a handheld radiation sensor leads the team to the region where the radioactivity has concentrated. The surgeon can then make a tiny incision there, and look for signs of blue dye entering the first lymph node or nodes. This helps locate the nodes that should be removed and tested for the presence of cancer.

Because such nodes are the first stop for traveling cancer cells, they're called "sentinel" nodes.

The lymphatic system in the head and neck is especially complex, with nodes and ducts interlaced with the crucial nerves and blood vessels that allow muscles and organs to function. Lymph fluid from the scalp may drain to hard-to-find nodes a foot below, deep in the neck. And one false move with a scalpel could paralyze parts of the face or shoulders.

The new results show it can be done safely by an experienced team, and still be effective.

The U-M team found that in 80 patients with melanoma on their heads or necks who had the procedure between 1998 and 2000, at least one sentinel lymph node was successfully found in 77 (96.3 percent). The average number of nodes identified was 2.18, and three quarters of them were in the neck. The rest were near the ears, in what's called the parotid region.

In all, 17.5 percent of the patients who underwent mapping were found by pathologists to have cancer cells in their nodes. All had node dissections, and were followed for at least a year.

The remaining patients, whose nodes were cancer-free, were also followed for at least a year. Twelve percent of them developed recurrent disease, but only three patients had a recurrence in the area that had been mapped, giving a "false negative" rate of 4.5 percent.

The positive and false-negative rates from the U-M head and neck study are comparable to those from other studies where head and neck melanoma patients were included along with others, says Bradford, who is an associate professor and division chief of head and neck surgery in the Department of Otolaryngology at the U-M Medical School.

"Based on these results and other studies, we hope that sentinel lymph node mapping becomes part of standard practice for all patients with a melanoma more than 1 millimeter in depth," she says, noting that she and her colleagues will continue to follow the study participants for several more years to determine their long-range experience.