

healthpoints

ALL THE POSSIBILITIES OF MODERN MEDICINE



COLUMBIA UNIVERSITY
MEDICAL CENTER

Department of Surgery
In affiliation with
NewYork-Presbyterian Hospital

Adrenal Surgery

Selective venous sampling identifies patients whose hypertension may be surgically curable.

In his mid-fifties, JM had been struggling for years to keep his high blood pressure under control. Medications weren't working well, leaving him at continued risk for kidney failure, heart disease, and other serious health problems. His endocrinologist performed blood tests, suspecting an atypical cause might be involved. The results explained why JM's hypertension wasn't responding to typical medications – his body was producing excessive amounts of aldosterone, a hormone which can cause hypertension as well as clinical symptoms.

JM's endocrinologist referred him to the Adrenal Center at NewYork-Presbyterian Hospital/Columbia University Medical Center, where a CT scan of the abdomen revealed a tumor on JM's right adrenal gland.

"It would be reasonable to assume that the adrenal tumor was the culprit," said **Nicholas J. Morrissey, MD**, *Assistant Professor of Surgery and Director of Clinical Trials, Division of Vascular Surgery*. "If an adrenal tumor is over-secreting aldosterone, surgical removal of the tumor has a good chance of curing the patient's

hypertension." In many cases, physicians perform surgery based on assumptions such as this. However, sometimes appearances may be deceiving.

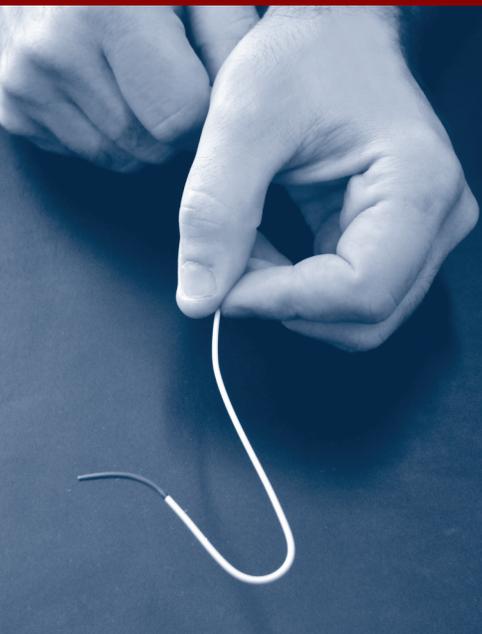
To be certain that the tumor was the cause of JM's hyperaldosteronism, Dr. Morrissey performed another test, called selective venous sampling. This test compared the levels of aldosterone that were secreted by JM's right and left adrenal glands. "The sampling showed that the side with the tumor (the right side) was not over-secreting aldosterone, but that the left adrenal gland was actually the problem," said Dr. Morrissey. "The tumor was just a benign lipoma, which required no treatment."

He was referred to **James A. Lee, MD**, *Director, Columbia Adrenal Center*.

Dr. Lee removed JM's left adrenal gland in a laparoscopic procedure after which he went home the next day, and his symptoms disappeared. Had his doctors not performed selective venous sampling, JM probably would have been incorrectly (and unsuccessfully) treated.

Of the 50 million people who have hypertension in the U.S., a subgroup of 2.5 to 5

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James A. Lee, MD, Director,
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Nicholas Morrissey, MD, holding a flexible
catheter that is used to perform selective
venous sampling of the adrenal gland

Cosmetic Surgery

Staging of 'age maintenance' procedures through adulthood provides superior results.

Have you ever wondered why certain celebrities seem to age better than their contemporaries? Why they look so good for so long? It may be because they understand the importance of 'age maintenance,' and have taken continuous small steps to care for their appearance.

When people wait until later in life to care for their appearance, they may end up playing catch-up with cosmetic surgical procedures, requiring such extensive changes that they look unnatural or "overdone," according to **Robert T. Grant, MD, MSc, FACS**, *Plastic Surgeon-in-Chief, NewYork-Presbyterian Hospital*. Dr. Grant recommends a more incremental approach, and specializes in helping patients maintain or enhance their natural appearance over the course of their adult lives.

In the case of women, hormone changes associated with menopause significantly affect the skin, says Dr. Grant. "It is far better to begin age maintenance treatments before menopause occurs than after." Because menopause significantly reduces the elasticity of a woman's skin, cosmetic procedures may not last as long as if they had been performed prior to menopause. More 'nipping and tucking' might be required than would be the case in the same procedure performed on a younger woman. In addition, fullness of the tissues under the skin of the face declines as a woman's hormone levels decrease in perimenopause, and a cosmetic procedure's tightening of the skin across a face with less youthful plumpness underneath the surface can sometimes lead to a look that is unnatural or extreme.

Dr. Grant consults with patients through all stages of adulthood

to help them understand what will work best when, and help them choose the least invasive, most effective options. "Embarking on a lifelong plan for addressing one's skin health and appearance is like an investment in one's future," he says. "By taking less invasive steps at an earlier stage, women can avoid the need for more dramatic, aggressive procedures in the future, maintain a more effective, rejuvenated look longer, and save both money and recovery time in the long term."

Patients may want to consider the following steps to maintain a youthful appearance:

In their 20's:

- ❖ Medical approaches including sun block, acne control, and topical creams and ointments that incorporate retinols and vitamin C;
- ❖ Minimally invasive skin procedures such as dermabrasion;
- ❖ Laser hair reduction;
- ❖ Reduction of spider veins;
- ❖ Commitment to personal fitness and weight control.

In their 30's:

- ❖ Minimally invasive and non-surgical procedures including fillers and Botox in the face;
- ❖ Surgical correction of abdomen, breast, or other tissues after pregnancy;
- ❖ Discreet surgical procedures for the eyes, face, and neck, which can prolong the period of time that a woman looks her best as menopause approaches;
- ❖ Light-based facial treatments including laser resurfacing, intense pulsed light or plasma.

In their 40's, 50's and beyond:

Chronological age becomes less important than a woman's physiologic age, says Dr. Grant: "Some skin is old at 40, and other skin not until later." As patients age, procedures such as face lifts or neck lifts may be recommended according to their corrective benefits, rather than for prevention. Daily maintenance, lifestyle, rest, and stress management are essential to looking one's best. In addition, patients may consider medical skin care, fillers, and "judicious use" of Botox to reduce wrinkles.

"Plastic surgery is about quality of life, and about a woman's overall health and well-being," says Dr. Grant. "I partner with each of my patients to identify and reach that balance of inner and outer beauty that is uniquely theirs, and to maintain that balance through every life stage." ■

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Robert Grant, MD, encourages patients to take incremental steps at earlier stages so that they can avoid more aggressive procedures in the future.

Pediatric Cancer: Bench to Bedside

Laboratory research at Columbia yields new treatment options for some of the most difficult-to-treat tumors in children.

Cancer treatments involve multiple agents, including the well-known options of chemotherapy and radiation. Most recently, drugs that target very specific parts of the cancer growth process have moved to the forefront of researchers' attention. Of these, a highly fruitful approach is one that blocks angiogenesis, the growth of the blood vessels, which in this case supply tumors.

Since 1998, **Jessica Kandel, MD, R. Peter Altman Professor of Surgery & Pediatrics (in the Institute for Cancer Genetics)**, and **Darrell Yamashiro, MD, PhD, Associate Professor of Pediatrics and Pathology & Cell Biology**, have pioneered this field of research at Columbia University. They began with efforts to inhibit angiogenesis using one specific antibody. This antibody, which targeted a key protein involved in the development of human tumor blood vessels, vascular endothelial growth factor (VEGF), was synthesized by a biotechnology company and was called A4.6.1. "We were particularly interested in treating refractory tumors for which there were no good therapies available," says Dr. Kandel. Since that time, they have focused their research on finding new therapies for pediatric cancers that have failed currently available treatments, including:

- ❖ Resistant neuroblastoma, a tumor that usually begins in the adrenal gland or nerve tissue. Neuroblastoma is the second most common solid tumor in children (after brain tumor), at about 700 cases per year in the U.S.;
- ❖ Recurrent Wilms tumor, which begins in the kidney and occurs in about 500 children per year in the U.S.;
- ❖ Resistant hepatoblastoma, which begins in the liver and is relatively rare, at only 300 U.S. cases per year.

The team's early research in blocking VEGF using A4.6.1 proved highly successful. This agent became the forerunner to

bevacizumab (Avastin), the first anti-angiogenesis therapy approved by the FDA to treat cancer. Today bevacizumab is widely used, along with chemotherapy, to treat cancer in adults. Results of the team's phase I trial in children were published in 2008.

Bevacizumab by itself is not a cure for cancer, but it can be used with chemotherapy to effectively treat some cancers, and in other cases to help extend patients' lives. It may have milder side effects than some chemotherapy, and is very well tolerated by children. It is gaining increasing use in a range of adult cancers, based on encouraging results so far in trials of adults with colon, breast, lung, and other tumors.

The effectiveness of bevacizumab varies depending on the type of tumor, according to Dr. Kandel, because the growth of blood vessels is not the same in all tumors. "Different tumors are more or less susceptible to being destabilized by bevacizumab than others," she explains. For instance, the drug is most sensitive in treating an experimental model of Ewing's sarcoma (a tumor of the bone or soft tissue), where it can block tumor growth by 90% in six weeks and significantly reduce the spread of cancerous cells (metastasis). In comparison, it may block tumor growth 40–50% in a model of resistant neuroblastoma. "Even in neuroblastomas with poor prognosis, the drug can have a positive effect," says Dr. Kandel.

Based on the success of bevacizumab, other anti-angiogenesis drugs (targeting VEGF and different proteins involved in angiogenesis) have been developed. Although these have been widely tested in adults, trials in children are still catching up. Recent and ongoing trials of these drugs in



children include the following:

- ❖ phase I trials (to determine safety and dosage) of sorafenib and VEGF-Trap;
- ❖ A phase I trial of sunitinib in children;
- ❖ A phase II trial (to determine efficacy) of bevacizumab in children.

Although results to date have been promising, the duration of bevacizumab's effectiveness is somewhat limited, as tumors appear to adapt to its presence after sustained treatment. Observation of this phenomenon has led Dr. Kandel and colleagues to study the process by which tumors learn to grow when blood flow is restricted. "We already know that tumors are not usually cured by one drug, but by the use of multiple drugs to control several tumor processes. We believe that learning how tumors adapt may provide even more avenues for therapeutic options," says Dr. Kandel. ■

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million may be resistant to hypertension medications because they have elevated aldosterone (hyperaldosteronism) instead of 'essential hypertension,' as most people with high blood pressure have. Left untreated, hyperaldosteronism increases the risk of heart attack, stroke, and congestive heart failure, and can eventually lead to end-organ damage to the heart, brain, and vascular system.

"According to large population studies from general medicine and hypertension specialty clinics, hyperaldosteronism may cause up to 5–10% of hypertension," says Dr. Morrissey. "Not all cases can be corrected with surgery, but some may."

Although an adrenal tumor may be responsible, many people have incidental tumors that are benign and unrelated (like JM). In others, no discrete tumor is present, but one or both sides of the adrenal glands may be overactive (hyperplasia). About 60% of people have bilateral hyperplasia, and about 40% have either an aldosterone-producing tumor or unilateral hyperplasia. If it is unilateral, removing the single adrenal gland can be curative – but removal of both adrenal glands is not a good option, because of the critical role that the adrenal glands play in producing cortisol and other hormones. Patients with bilateral hyperaldosteronism are treated with medication instead of surgery. Precise localization is therefore necessary to ensure successful treatment.

Very few hospitals perform selective venous sampling, however. The procedure involves extension of a catheter through a small incision in the groin, up into the veins of the adrenal

glands. Fluoroscopic guidance (a type of x-ray) is used to enable visualization. Once in the adrenal vein, the catheter is used to take a blood sample. Samples from each side are then sent to a laboratory which analyzes them and determines the amount of aldosterone and other hormones that are secreted from each side.

"It's a little bit like a treasure hunt," says Dr. Morrissey, who trained in the procedure and brought it to NewYork-Presbyterian Hospital after he and Dr. Lee recognized the increasing need for it at the Adrenal Center. "The left side is easy to access, but the right side is not. It can be difficult to insert the catheter into this very narrow vein, and there are other veins nearby that can masquerade as the adrenal vein," says Dr. Morrissey. "Occasionally we are unable to successfully cannulate the right vein and we must repeat the test." Fortunately for patients, it is not a lengthy or painful procedure.

If selective venous sampling confirms the need for surgical treatment, patients can expect to receive the highest level of care at the Adrenal Center. Dr. Lee and colleagues now offer 'single site' adrenal surgery, in which the surgery is performed through just one tiny incision.

"Many patients have been living with a puzzle that has been difficult to decipher for years," says Dr. Morrissey. "We are very pleased that we can help answer their needs with precise testing and the most effective, least invasive procedures." ■

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Venograms of the right and left adrenal glands.

Pancreatic Cancer Awareness Day and PurpleSTRIDE 2009 Walk

Yearly, NewYork-Presbyterian Hospital/Columbia University Medical Center hosts Pancreatic Cancer Awareness Day in November which is National Pancreatic Cancer Awareness Month. In 2009, the hospital also co-hosted the PurpleSTRIDE walk.

DAY ONE

11/7/09, Pancreatic Cancer Awareness Day

Over 100 people attended this free community event, led by Dr. John Chabot, Director of the Pancreas Center and the Muzzi Mirza Pancreatic Cancer Prevention & Genetics Program. Participants learned about precursors to pancreatic cancer, genetic factors, risks, screening, post-operative lifestyle changes, diagnostic imaging, cancer-therapy breakthroughs, dealing with depression, and more.

DAY TWO

11/8/09, NYPH and PanCAN PurpleSTRIDE 2009 Walk

Dr. Chabot and the Pancreas Center at Columbia University Medical Center co-hosted PurpleSTRIDE Manhattan at Riverside Park in conjunction with the Manhattan affiliate of the Pancreatic Cancer Action Network. This was the first walk for pancreatic cancer to take place in Manhattan. Over 2,000 walkers participated and raised over \$300,000, making this the most successful first PurpleSTRIDE in PanCAN's history.

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