



# PIPS *Steps*

A PUBLICATION OF THE PITTSBURGH INSTITUTE OF PLASTIC SURGERY

## An Anesthesia Primer

Not too long ago, prior to the advent of Managed Care, just about anyone scheduled for surgery (other than the most minor of surgery) in a hospital was admitted to that hospital on the evening prior to the day of surgery. Customarily, a representative from the hospital's Anesthesia Department visited the patient that evening to explain to him/her the anesthetic most suited to his/her surgery as well as its after-effects, etc. Nowadays, though, virtually every surgical patient, even one scheduled for fairly complicated surgery, is admitted to a hospital on the day of his/her surgery or, in some cases, is not admitted to a hospital at all, given the shift of much surgery to an ambulatory (outpatient) surgery center or even a private operating room, owned and operated by the operating surgeon. Consequently, patient contact with an anesthesiologist prior to surgery is very limited or, in many cases, non-existent. Discussions with a patient about anesthesia as well as associated risks, complications, etc. unfortunately fall on many occasions to surgeons like me. I say "unfortunately" because anesthesia is a very sophisticated, knowledge-intensive medical specialty which proves a handful even for most anesthesiologists. Consequently, only a rare surgeon (and I don't claim to be one of them) is capable of mastering the medical specialty of anesthesia and his/her surgical specialty as well. Essentially three kinds of anesthetics or anesthetic "approaches" are available to any surgical patient today.

The first is LOCAL ANESTHESIA with which all of us are familiar already unless we've never visited a dentist's office. It is a form of anesthesia which has been available to us for more than 100 years and involves the introduction by injection of a substance (most commonly thought to be "Novocaine" but more than likely "Lidocaine" or "Xylocaine") into an area of the body, usually an area of the skin or mucous membrane. The substance interferes with the ability of the sensory nerves of the injected area to conduct nerve impulses or at least certain kinds of nerve impulses. Therefore, while an anesthetized tooth/gum (or, for that matter, any other area of the body) may be aware of pressure, it may not be aware of pain created by more noxious stimuli such as extreme heat or cold, surgical incision, etc. When a local anesthetic is injected into a major nerve or a series of major nerves (known as "nerve block"), that anesthetic may result in anesthesia or numbness of a rather large body part distal to (in other words, beyond) the specific area into which that local anesthetic is injected. Therefore, injection of a local anesthetic into the axilla (armpit) may result in anesthesia of the entire corresponding arm from shoulder to thumb/fingertips. That same local anesthetic injected into the spinal column (commonly known as a "spinal") can anesthetize the lower half (or more) of the entire body.

The second, and perhaps the direct opposite of local anesthesia, is GENERAL ANESTHESIA. Such anesthesia employs a variety of drugs (usually intravenous drugs), gasses (always in combination with oxygen) and other modalities such as hypothermia, or body temperature lowering, to manipulate a patient's consciousness and Vital Signs, which include temperature, cardiac—or heart—rate/rhythm (pulse), blood pressure and respiration (not just in terms of rate but also depth, effectiveness of exchange of oxygen for carbon dioxide, etc.). Anesthesiologists and surgeons speak of different "levels" of general anesthesia which simply reflect the extent to which these various Vital Signs are manipulated. Under general anesthesia, a patient appears to be "sleeping", although this "sleep" resembles normal sleep only in outward appearance. Such a patient is insensible to pain, pressure or any other external stimulation. To many patients, the thought of giving control of his/her body to another individual is scary. Consequently, general anesthesia represents in the minds of many surgical patients the most dangerous form of anesthesia, one to be avoided if possible. Such fears are unfounded, particularly given the sophistication of today's anesthesiologist/anesthetist. Virtually any problem related to a patient's well-being which occurs during a surgical procedure can be addressed immediately and satisfactorily when that patient is under the effects of general anesthesia. Such a rapid and ready response to a problem may not be available to a patient undergoing surgery under some "lesser" form of anesthesia.

The third is essentially a hybrid of local and general anesthesia and amounts to LOCAL ANESTHESIA SUPPLEMENTED WITH SEDATION VIA INTRAVENOUS MEDICATION. In other words, use of local anesthesia to anesthetize an area of the body or a body part while the patient's senses are dulled by the use of intravenous drugs. In such situations sometimes the local anesthetic becomes unnecessary and sedation alone, again via intravenous drugs, serves the needs of that patient and his/her surgeon nicely.

Who determines who gets what kind of anesthesia? Well, the decision really is a collaborative effort by the surgeon, the anesthesiologist/anesthetist and last, but certainly not least, the patient undergoing surgery. Some surgical procedures simply cannot be undertaken under other than general anesthesia and, therefore, general anesthesia proves to be the anesthetic of choice for those procedures, despite what patient and surgeon may otherwise prefer. Other surgical procedures lend themselves to any one of a number of anesthetic "approaches" and consequently the anesthetic chosen for any of those procedures is a function of the personal preferences of the three parties involved in that choice. In all cases, though, the decision for or against a particular anesthetic is influenced by that anesthetic which allows a surgeon to undertake surgery upon a patient effectively and thoroughly but at least risk to that patient.



THE  
PITTSBURGH INSTITUTE OF  
PLASTIC SURGERY

*... where the art of plastic surgery is State of the Art. ...*