


## Notes from the Field - Stones Removed

By Lynn Koller

he patient lies in the shape of a cross, on her back with her arms extended, in a chilly, well lit room. A cap covers her long, straight blond hair. The 38-year-old woman's shapely body is draped in sterile blue sheets. Dr. S, an anesthesiologist, stands by her head inside a half circle of monitors and other medical equipment. A surgical technician tends instruments on a tray while the patient, still awake though tranquilized, mentions that she used to smoke, but that she has quit smoking, and that she is nervous about the surgery.

The patient did not mention that, until only a few minutes prior, she had believed that she would be naked and unconscious on the operating table and exposed to whatever indignities any employee of the surgical center wanted to impose upon her. A friend – a medical professional – had told her that. Her surgeon could have advised her that she would wear a gown that exposed only her abdomen, and that safety procedures generally kept patients safe from deliberate harm, but the patient said nothing of her fears to the surgeon; she remained silent, because the situation embarrassed her. As she cried quietly while being prepared for surgery, a kind medical assistant comforted and assured her that her body remained safe from exploitation. The operation served to heal, not harm. That the patient willingly offered her body, believing that the cost was humiliation, may attest to the sacrificial

nature of being a patient. Or it may attest to the power of physical pain and a patient's desire to be free from that pain.

At 9:35 a.m., Dr. S glances at colored bars on a screen. He is monitoring the multi-function machine that displays the patient's vital data—the data that divulges whether the patient is functioning properly, dying, or **dead**. The machine detects and converts things like **heart** function, oxygen saturation, carbon dioxide levels, airway pressure, and blood pressure into digital data and displays the information on a screen in an audio/visual format. Dr. S hears a rhythmic beep as he watches lines and numbers on the computer monitor that assess the patient's physical well being. He could just as easily monitor the patient from another room. Her corporeal presence is not strictly required.

“It will tell me that I have a problem even before I can **imagine** it,” Dr. S says of **the** multifunction monitor.

Dr. S says this with some **irony**, as patients' lives depend on their physicians' imaginations—the minds that can envisage the modification **of** the human body from the inside out. The anesthesiologist and surgeon's imaginations must also predict thousands of possible outcomes to individual actions and exactly how to proceed when any one or combination of those outcomes occurs. An inventory of medical technologies has helped physicians in both regards, including the system used by Dr. S.

While understanding the full meaning of this data requires extensive training, the monitor makes it quite clear when the body's functions have gone awry. The normal lines and beeps emanating from the machine have cadence; they are musical, in a sense. The rise and fall of the stomach, the thump of the heart, and the pulse **that** lightly beats against the skin are **the body's** beats. On Dr. S's monitor, the rise and fall of lines on a screen and the steady beep of the machine give observers a baseline by which any deviation triggers alarm. The anesthesiologist says deaths attributed to anesthesia have dropped from 1 in 10,000 to 1 in 250,000 over the last decade in large part due to these systems. Generally, though, each patient cares about the 'one' more than the 249,999 others. Dr. S covers **this** patient's **face** with a **mask** and she slips into unconsciousness. He inserts a tube into her throat and tapes her eyes closed. The patient communicates through her data and lies completely at the will of those she has entrusted with her care.

A surgical technician adjusts the patient's blue sheets. He opens the patient's dressing to expose a rectangular area on her abdomen, which will serve as the surgeon's doorway to the internal body. A sheet is raised at an angle above the patient's neck to obstruct her view of the surgical area in the unlikely event that she awakens from anesthesia in the middle of the operation. Seeing one's own viscera is said to be traumatizing. Despite the popularity of medical reality shows that show surgeries on various body parts in full, fleshy detail, the recognition that we are meat

does not come easily. This is particularly true of those knowing that a sharp, metal blade will soon pierce their flesh.

Everyone in the room wears a face mask to help prevent infecting the patient with germs, a risk reduced by the small incisions of laparoscopic surgery.

Conversation flows easily between the surgical team members, though it takes practice to communicate without the usual facial expressions – visual cues – to understand meaning. People who work the operating room learn to express and interpret emotion through their eyes. Raised eyebrows, crinkled eyes, widened eyes, or a slightly prolonged stare take on heightened meaning in the OR.

At 9:50 a.m., Dr. D, a general surgeon and, reportedly, a concerto pianist, enters. His colleagues, employees, and patients seem to venerate him, stating that he has superlative skill in the operating room, though lacks affability. Surgeons are often thought of as controlling and cold. Watching the reverence with which one is treated by other medical professionals in the sanctum sanctorum of the operating room may explain how such an arrogance would develop; however, there is no conclusive evidence to suggest that the stereotype is true. Fixing bodies is the test by which surgeons are judged. It takes nerve. While a chilly disposition may not be an admirable trait, patients appreciate the conceit that allows someone to drive a scalpel into the human body and come up aces. A scrub nurse dresses Dr. D in a gown and gloves.

“Tell me what I’m doing,” Dr. D says with a clout peculiar to surgeons.

He is doing a laparoscopic cholecystectomy – gallbladder surgery guided by a camera. Surgeons perform thousands of these surgeries every year; they have replaced the traditional cholecystectomy, which required a five- to eight-inch incision, greater recovery time, more time under anesthesia, and greater risk to the patient. Gallbladder removal overall is the most common surgery in the world. Losing the organ itself seems to pose no risk. The gallbladder is a pear-shaped organ that stores bile produced by the liver before dumping it into the small intestine, but the body seems to get along fine without it. Sometimes, as in this case, small stones form that cause an obstruction that discomforts the patient, usually after eating fatty foods.

For weeks, this patient had complained of severe upper abdominal pain at night. She saw her physician, who ordered a hepatobiliary iminodiacetic acid (HIDA) scan to evaluate her condition. During this procedure, a radioactive tracer was injected into her body through an IV line, which collected her liver and gallbladder and gave off gamma rays. A special camera took pictures of these rays. Her radiologist and physician then had images that indicated a need for gallbladder removal and referred her to a general surgeon.

The surgeon draws lines on the patient's body with a marker. He then uses a scissors-like tool to cut a hole in her belly button; he cuts three additional small holes in her abdomen. He inserts the laparoscope, a tool with a small camera connected to it, through the naval.

“Kill the light,” Dr. D says.

The light that shined on the patient dims. A technician who serves as the cameraman takes hold of the camera. In some ways, the success of the operation depends upon him, though he serves at the behest of the surgeon. The surgeon's gaze shifts from the patient to the color monitor that displays the magnified images of the patient's innards, **illuminated by** a small light attached to the camera. Carbon dioxide is pumped into **the** abdomen to help the surgeon see and maneuver the terrain. At 9:55 a.m., the **cameraman** moves the camera through the inside of the patient. Veins, an artery, yellow fat, and flesh become visible. Soon, the liver appears on the screen, as does the pancreas. Dr. D uses pinchers inserted through one of the incisions to move things out of the way.

With seemingly little effort, Dr. D finds and separates the gallbladder from the liver and ducts. Watching the camera all the while, he staples the cystic duct that delivers the bile and uses a hook electrode to burn the edges of the gallbladder. Throughout the procedure, he makes decisions based on the screen's moving images about what looks normal **and** what does **not**. He must decide what should be cut, pushed away, stapled, or **otherwise** attended to and what must not, under any circumstances, **be disturbed**.

One of Dr. D's colleagues, another general surgeon, says that a difference between operating based on a screen image rather navigating the actual body is a change in one's sense of **touch**. The traditional cholecystectomy is a visceral

operation; surgeons delve more blindly into the abdominal cavity, relying heavily on the sensation in their fingers to decide where they are in the body and what to do there. With the prevalence of video-guided surgery, the body becomes the source of the image and the surgeon must focus on the image rather than the body itself. The surgeon has a new medium – that of the screen or monitor – which communicates a continuous stream of information about the patient in the form of moving images. If a photograph or the series of still frames that comprise film are generally considered artifacts of the past, perhaps we could deem the surgeon a historical revisionist.

The surgeon revises this patient, so that her bile can flow freely. Through a hole in her upper chest cavity, he pulls out three slimy, cherry pit sized stones and a bile bag. He breaks the bag onto the patient's chest and a primordial greenish-yellow fluid flows out. Dr. D removes the offensive gallbladder through the hole and finishes the operation. The camera and other instruments are pulled from the patient's abdomen. At 10:05 a.m., the lights are turned back on. The images vanish from the screen and all attention reverts to the body on the table. The surgeon sews the patient's wounds with blue thread and leaves the room.