

# THE LNC NEWSLETTER

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## LASIK Surgery Complications

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### Background

Vision begins as light bounces off objects in our environment and passes through the cornea (clear, transparent portion of the coating that surrounds the eyeball) into the center of the eye called the pupil. The light reaches the lens where it is focused by bending light rays onto the back of the eye called the retina. The retina contains the receptor cells (rods and cones) that respond to light. These receptor cells respond to light by generating electrical impulses that travel out of the eye through the [optic nerve to the brain](#).

The cornea creates most of the light refraction while the lens will fine-tune the focus. For clear vision, light rays must focus directly on the retina. When light focuses in front of or behind the retina, the result is blurry vision. These imperfections in the ability to focus light on the correct part of the retina are called refractive errors. There are three main types of refractive errors: myopia (nearsightedness), hyperopia (farsightedness) and

astigmatism (a distortion of the image on the retina caused by irregularities in the cornea or lens of the eye).

### Procedure

LASIK or *laser assisted in situ keratomileusis* refers to the use of a laser to reshape the cornea without invading the surrounding tissues. Reshaping the cornea can improve vision by allowing light to be re-focused on the correct part of the retina. After anesthetic drops are applied the surgeon marks the eye with ink to guide flap replacement. The surgeon applies a suction ring designed to hold the eye steady and checks the pressure of the eye. The surgeon raises a thin layer of the cornea, or corneal flap, with the microkeratome to expose the portion beneath. The flap - the outermost 20 percent of the thickness of the cornea - is lifted and reflected to the side. The surgeon tests for laser alignment and walks the patient through the fixation process. The computer-controlled

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## The Devil...

Robert Morrison, RN BSN

So started a favorite saying of my grandmother. Just as she found a way to apply this to virtually every life situation, I have found that it also plays into every malpractice case we review. Lately we have had more requests for merit review and deposition preparation than any other service. Two of these cases have served to illustrate just how much my grandmother knew after all.

Jane, a thirty-two year-old secretary, and Mary, a forty year-old teacher, had little in common. They lived in two different areas of the country and experienced very different medical emergencies. However, they both suffered irreversible damages due to a lack of attention to detail by their treating physicians. Their cases are perfect examples of what happens when the provider doesn't utilize all of the information at hand and the LNC does.

Jane (names and details have been changed) reported to a local Urgent Care Clinic/ Emergency Room complaining of difficulty breathing, sharp throat pain sudden in onset, thickness of the throat, bilateral arm pain, pain in her teeth, and difficulty swallowing. Her systolic pressure (the upper portion of the blood pressure reading) was 190-240. She had smoked a pack per day for the past 10 years. She had begun antibiotics two days earlier for a sinus infection. She was diagnosed as having an allergic reaction to the antibiotics, given Benadryl and told to stop the antibiotics, then discharged home.

Within three hours she was back at the Urgent Care.

This time the physician (the same one who saw her earlier) correctly diagnosed a dissecting (tearing) aortic aneurysm and called for EMS to transport to the hospital ER. Unfortunately, by the time she was taken to surgery her condition was beyond repair. She was pronounced dead without ever undergoing surgery.

A close reading of the medical record by the nurse consultant revealed a host of information available to the doctor the first time Jane was seen. Her diastolic reading (the lower portion of the blood pressure reading) was 40-50. This combination of an extremely high systolic and an extremely low diastolic is a classic indication of a dissecting aneurysm. To a physician, the low diastolic, even in the absence of an elevated systolic, should have flagged serious cardiac insufficiency. Throughout her first visit there were 9 different blood pressure readings that showed this. The diagnosis was also questionable, as it appeared to be lacking any hard clinical evidence. She had taken the antibiotic several times before without complication and had no history of any medication allergies, making it unlikely that she was suffering such a reaction. The doctor also pointed repeatedly to her smoking habit as a contributor, although there was no evidence of respiratory problems. It made the doctor look like he had already formed his diagnosis and simply didn't pay attention to the data that didn't support it. And this physician was currently defending himself from a malpractice suit that also involved a missed dissecting aneurysm. He should have had an increased awareness of the symptoms.

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## LASIK Surgery Complications

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excimer laser removes the tissue under the flap and reshapes the cornea of the affected eye. In less than 60 seconds, ultraviolet light and high-energy pulses from the excimer laser reshape the internal cornea (the stroma). Then, the surgeon lays the flap back into its original position and observes the eye for three to five minutes to ensure bonding. Because the cornea bonds quickly, healing is rapid, and the eye does not require stitches.

### Complications

Complications can arise intra-operatively or post-operatively in the LASIK patient. Often it is not the complication itself that gives rise to complaints of medical negligence, but the manner in which the complication was managed. Informed consent can also become an issue when surgical outcome is unfavorable even in the absence of negligence.

### Patient Selection:

Patients with cataracts, advanced glaucoma, corneal diseases, corneal thinning disorders or certain other pre-existing eye diseases that affect or threaten vision are not candidates for LASIK. Other relative contraindications need to be addressed by the physician on a case-by-case situation: a pregnant, nursing or post-partum patient, any patient with wound healing difficulties (diabetes, chronic steroid use, and autoimmune disorders), those with severe refractive disorders, and those under the age of 18 years.

Informed consent must be obtained for each patient. Both eyes can be done at the same visit as long as the patient understands and accepts the known risks. LASIK surgery for patients with larger than average pupils (6mm is considered average) can cause problems with poor night vision, halos and glaring. Realistic expectations for vision correction should be discussed with each patient. Over 90% of patients with low to moderate myopia will achieve 20/40 vision, which is considered the minimum allowed by most states to drive without having to wear contacts or glasses.

### Intra-operative complications:

As with every surgery, correct patient identification is the first step in avoiding intra-operative complications. Procedures should be in place in each laser center for correctly identifying the right patient, the

correct eye, and the correct data needed for vision correction. Technicians are generally used to enter data into the laser computer. Failure to confirm and enter the correct patient data can cause visual loss as the laser is set to change the shape of the cornea based on the type of visual loss that patient experiences.

Corneal flap complications, inability to obtain sufficient suction and laser-related failures are some of the most common surgical complications in LASIK surgery. If the corneal flap created by the microkeratome is not the appropriate depth, the flap should be replaced and the surgery should be continued at a later date when a new cut can be made. Irregular laser ablation a result of an improperly created corneal flap can lead to severe visual loss. Research has shown that a learning curve is associated with LASIK procedures. Seventy percent of ophthalmologists are considered low volume practitioners, performing less than 600 procedures per year.

The excimer laser is considered the most accurate for use in LASIK surgery. The type of refractive error will guide the type of laser that is used in each surgery. FDA-approved lasers can be researched online at the following web address: <http://www.fda.gov/cdrh/LASIK/lasers.htm>. LASIK is also performed off-label in the United States. LASIK for treatment of hyperopia has been approved for two commercial laser systems and is off-label on all other U.S. lasers.

### Post-operative complications:

Visual loss or abnormal changes in vision can be related to infection, diffuse lamellar keratitis (DLK), wrinkles in the corneal flap, vision under/over correction, halos, glares, optic neuropathy and epithelial in-growth. Environmental factors such as humidity, temperature dust and airborne particulates, flooring, cleanliness can all influence the outcome of the surgical procedure. The laser center should follow laser manufactures guidelines for maintaining an environment conducive to performing LASIK.

Post-operative instructions need to include proper eye care (avoiding make-up, lotions, and creams around the eye for example), signs of infection (significant visual loss, painful red eye) and when to call the physician (any new, unusual or

worsening symptoms at any point after surgery). Infections that occur within the first 12-24 hours after surgery are considered nosocomial and should be treated with antibiotic eye drops.

DLK, caused by a sterile infiltrate under the flap, usually appears in the first 12-48 hours as painless blurry vision. Inflammation due to DLK, treated with steroid eye drops, generally results without significant visual loss when it is detected and treated early.

Optic neuropathy related to a lack of blood flow to the optic nerve can result from the marked increase in intraocular pressure caused by the suction ring. The general rule is that the suction device should not be applied to the eye for longer than 30 seconds.

It may take up to three to six months for the cornea to stabilize after surgery. During this time vision is expected to fluctuate. Glare, haloes, difficulty driving at night, and other visual symptoms may also persist during this stabilization period. If further correction or enhancement is necessary, it's recommended to wait until eye measurements are consistent for two consecutive visits at least three month apart before re-operation.

Complications of LASIK can be related to inappropriate patient selection, physician and/or technician error, poor surgical technique, equipment malfunction, environmental inadequacies, failure to detect and treat complications timely and appropriately and failure to provide informed consent. Understanding the selection criteria, surgical procedure, expected outcomes, associated risks and complications related to LASIK surgery can assist you in determining the merits a potential LASIK case.

I'd like to take this opportunity to welcome our newest member of the LNC Newsletter team, **Maggie Driscoll**. I'm sure she will be an asset to the newsletter, as she has a wonderful writing style, with attention to details. We are pleased and delighted that she decided to join us, as I am sure, you, our loyal readers, will be at well.

## Vanishing Twin Syndrome and Fetus Papyraceus

Jan Aken RN IBCLC LNC

Vanishing twin syndrome is the identification of a multiple fetal gestation followed by the ensuing disappearance of one or more of the fetuses. The term fetus papyraceus is used to describe a mummified fetus after the demise. Both the vanishing twin syndrome and the fetus papyraceus are always associated with multiple gestations. The term lithopedion is a calcified fetus and this is usually not associated with a multiple gestation. A lithopedion will occur if the fetus is retained for many months beyond the average gestation. As I was doing research for this article I read about one particular intriguing case. In that case, a 94-year-old woman was found to have a lithopedion. The article went on to say this lithopedion had probably been retained in her uterus for approximately 61 years!

### **Background**

With the advent of ultrasound technology and its use in early stages of pregnancy more cases of vanishing twin syndrome are diagnosed. This syndrome was first described in 1945. Causes of vanishing twin syndrome are genetic or chromosomal abnormalities and improper cord implantation. Vanishing twin syndrome occurs in 1:12,000 births ranges between 1:184 and 1:200 twin pregnancies. The fetus papyraceus becomes a flattened, mummified fetus attached to the placenta. The fetus is compressed due to the growth of the surviving twin or other fetuses in the uterus. The compressed fetus may have the appearance of parchment paper. The time frame after the intrauterine fetal demise along with the retention of that fetus is a minimum of 10 weeks. As the surviving fetus continues to grow it compresses the small fetus that it resembles parchment paper.

### **Maternal complications**

Vaginal bleeding and cramping in the first trimester may be the only signs and symptoms of the fetal demise. In these early months of the pregnancy the twin maybe completely reabsorbed and vanish. In which case neither the mother nor the remaining surviving fetus should suffer any problematic effects.

However when this event happens in the second or third trimester the mortality and morbidity are increased for both mother and fetus. The mother may have the vaginal bleeding, cramping and pelvic pain

in to other problems. Some of the serious complications for the mother would include premature labor, infection due to the demise of the fetus, and hemorrhage. Even at the end of the pregnancy, problems may present. A cesarean is performed if the cervix is blocked by the low-lying fetus papyraceus. A fetus papyraceus or other histological changes may be noted at the time of delivery of the placenta. Sometimes the only evidence of a fetal demise of a twin may be a cyst on the fetal surface of the surviving twin placenta.

### **Infant complications**

Now a couple of problems for the surviving fetus may include cerebral palsy and skin necrosis. If the event takes place in the second or even the third trimester the remaining fetus will be at an increased risk for cerebral palsy. The hypothesis is that the surviving twin will undergo a period of hypotension at the time of the other twin's demise causing an insult to the brain. Additionally areas of skin necrosis may be noted at delivery and again the hypothesis centers on the poor perfusion by the placenta when the demise of the other fetus occurred.

### **The medical-legal implications in these cases**

- Education is a key component in the antepartum stage of any pregnancy. It must be addressed at every prenatal visit. The health care provider must instruct the mother about any adverse signs and symptoms such as cramping lower abdominal pain and bleeding that may denote problems with pregnancy.
- The mother and her significant other will need additional education if an early ultrasound reveals multiple fetuses in the uterus.
- Additionally if an amniocentesis is ordered, again the mother needs to have a knowledge base so she can make an informed decision. The chorionic villus sampling test may indicate a twin with abnormal chromosomes.
- The possibility exists the viable twin is being supported by the vanishing twin's placenta.

- A dilation and curettage (D&C) must not be performed until it is known for certain the uterus does not contain a viable fetus. How is that determined? Well with ultrasound technology and by laboratory testing. The laboratory tests most often ordered would be the alpha-fetoprotein (AFP) and the beta-human-chorionic gonadotropin ( $\beta$  HCG). After being informed of all the facts the mother may or may not want to abort the viable fetus.

## The Devil...

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For the LNC on this case the outline and preparation for the doctor's deposition was made much easier by the wealth of information present in the medical record. None of the material used to prepare the deposition outline was developed by the LNC or the attorney. All the information needed was in the medical record from the Urgent Care clinic, and all of it was generated by the physician and his staff.

Anyone can miss a few items. Medicine is a demanding and occasionally cruel taskmaster that can demand perfection. When that happens the providers have to be prepared and pay attention to every detail. After all, that is why the medical facility maintains a staff. Everyone has their role and everyone is keeping everyone else informed of the situation. Are they listening? Our next case shows what happens when they are too busy talking to listen to each other, and literally miss the entire forest for the trees. (Look for part 2 next month)

I'd like to take this opportunity to welcome back **Rob Morrison** to our group. He was one of our founding members, but due to time constraints of a busy LNC practice and family obligations, he dropped out for a while. We are pleased and delighted that he decided to return, as I am sure, you, our loyal readers, will be at well.

## Abdominal Aortic Aneurysm

By Gail Hendrickson RN, CEN, LNC

Abdominal aortic aneurysms (AAA) occur in 5-7 percent of people over the age of 60 in the United States.<sup>1</sup> An AAA is an abnormal ballooning of the abdominal portion of the aorta, which is the major artery from the heart.

The exact cause of an AAA is unknown, but risk factors include arteriosclerosis and high blood pressure. There is strong evidence that suggests a genetic susceptibility to AAA. A patient with an AAA has a 20% chance of having a first degree relative with the same condition. Male siblings are at a particular risk. An AAA is most often seen in men aged 40 to 70.<sup>2</sup>

Physical exam is one of the most important tools for diagnosing an AAA. However, obesity may make palpation of an aneurysm difficult. There are several studies used to diagnose an AAA. These include an ultrasound, CT scan, MRI and angiogram.

A common complication of an AAA is rupture. This is a medical emergency, where the aneurysm breaks open, resulting in profuse bleeding. The chance of an aneurysm rupturing increases with a larger aneurysm.

Symptoms of an AAA include a pulsating abdominal mass with

throbbing. Many AAA are asymptomatic and are detected during routine physical examinations or during an unrelated radiologic or surgical procedure.

Symptoms of expansion or rupture of an AAA include:

- Severe, constant pain in the abdomen, flank or back
- Abdominal rigidity
- Pale, moist, clammy skin
- Rapid pulse
- Anxiety
- Nausea and vomiting
- Lightheadedness
- Shock if not treated immediately

Treatment of an AAA depends on the size. Size has been correlated with the risk of rupture. If a person is diagnosed with a small AAA (for example 2 cm) the physician may opt to monitor the size with ultrasound and/or CT scan to see if it enlarges. When an AAA is 5 cm in diameter or larger, it should be surgically repaired. The indications for surgical repair of AAA are to relieve pain, prevent rupture and to prolong life. These goals are best met when surgical repair is done as an elective procedure. Emergency surgery is indicated for nearly all patients with known or suspected rupture, because non-surgical therapy of a ruptured AAA is fatal.

A patient or their family may elect to not have surgery if there is another fatal illness and a very short life expectancy.

The diffuse and non specific nature of a symptomatic AAA may lead to errors and delays in diagnosis. The clinical diagnosis of aneurismal rupture is straightforward in patient who present with abdominal pain, low blood pressure and a pulsatile abdominal mass. However, only a minority of patients present with these three classic signs of aneurismal rupture. Variation of absence of any one of these three cardinal signs appears to delay a correct diagnosis.

The outcome is usually good when an AAA is surgically repaired as an elective procedure before a rupture occurs. Less than 50% of people with a ruptured AAA survive.<sup>3</sup>

<sup>1</sup> [www.aafp.org/afp/970915ap/santilli.html](http://www.aafp.org/afp/970915ap/santilli.html)  
Diagnosis and Treatment of Abdominal Aortic Aneurysms

<sup>2</sup> [www.nlm.nih.gov/medlineplus/ency/artic/e/000162.htm](http://www.nlm.nih.gov/medlineplus/ency/artic/e/000162.htm) Abdominal Aortic Aneurysm

<sup>3</sup> [www.nlm.nih.gov/medlineplus/ency/artic/e/000162.htm](http://www.nlm.nih.gov/medlineplus/ency/artic/e/000162.htm) Abdominal Aortic Aneurysm

## When Using an LNC Think Outside of the Box

Pattie Patterson RN, LNCC

As we near the end of another year and start to gear up for 2004, let's be sure each of you is utilizing your legal nurse consultant in his or her best capacity. Most of you are pretty familiar with using the legal nurse consultant for medical malpractice cases, personal injury, toxic torts, workman's comp and product liability cases. You may even be utilizing them for areas such as setting up trusts, such as with the life care planner. You also use them for experts on the standards of care, as well as fact experts. And this is all great! But are you or others in your firms missing something, an untapped resource, if you will?

Are there issues with wills being contested where the medical knowledge of a good legal nurse consultant may be utilized? Maybe someone's mental status is in question were they mentally

competent at the time they wrote of signed the will. A legal nurse consultant can help you in determining this.

What about the signing of a contract? Was the person on medications that might have deemed him or her unable to make an informed decision to even enter into the said contract? Or did the person have a mental disease or defect that made him or her incompetent to make the same said informed decision? These are issues that a legal nurse consultant can ascertain for you, through their training, experience and research, and by studying the person's medical history.

How about a criminal investigation? Have you ever thought of utilizing a legal nurse consultant to do the research on the medical issues of those cases? Even if you find you need an expert to opine to the medical issues in

question, many times the legal nurse consultant's research will not only give you the authoritative information to support your claim, but will also lead you to the expert you need to make your case, should the information support your claim or theory. And should the information be contrary to your claim, don't you want to know ahead of time?

By having the legal nurse consultant do the research before hiring the expert you'll already know what the facts are and can make a better informed decision as to how to proceed in your case, not to mention will already have the documentation to prove or disprove the claims. So, doesn't it make sense to consider a legal nurse consultant for any case involving any type of medical issues?

## What's the H & P?

Jeannine Lurie RN, BSN, CLNC

The History and Physical Exam, often called the "H&P" is the starting point of the patient's "story" as to why they sought medical attention or are now receiving medical attention.

The History portion contains the chronology of what is wrong with the patient - often the "what is wrong with the patient" is called the "chief complaint" and is often abbreviated "CC" in the History documentation in the medical record. ("CC" is defined as a concise statement describing the symptom, problem, condition, diagnosis, physician recommended return, or other factor that is the reason for the encounter, usually stated in the patient's words). If the Chief Complaint is documented by anyone other than the physician such as ancillary staff, the physician SHOULD restate the chief complaint in his/her documentation.

The History is comprised of four parts: chief complaint (CC); history of present illness (HPI); review of systems (ROS); and past, family and social history (PFSH).

**HPI** (history of present illness) is a chronological description of the development of the patient's present illness from the first sign/or symptom or from the previous encounter to the present. There are eight recognized descriptive elements that constitute the HPI which are listed below with examples of each in parentheses.

**ROS** (review of systems) is an inventory of body systems obtained through a series of questions seeking to identify signs/symptoms which the patient may be experiencing or has experienced. There are 14 recognized systems which constitute the ROS: (Constitutional symptoms; Eyes; Ears, Neck, Mouth, Throat; Cardiovascular; Respiratory; Gastrointestinal; Genitourinary; Musculoskeletal; Integumentary; Neurological; Psychiatric; Endocrine; Hematologic/Lymphatic; and Allergic/Immunologic.) **PFSH** (past, family and social history) is a review of one to three areas. The patient's: Past History (experiences with illness,

operations, injuries, and treatments); Family History (medical events including diseases which may be hereditary or place the patient at risk); and/or, Social History (age appropriate review of past and current activities).

Usually the extent of HPI, ROS, and PFSH that is obtained and documented is dependant upon clinical judgment and the nature of the presenting problem. If the physician is unable to obtain a history from the patient or other source, the record should describe the patient's condition (poor historian, incapacitated, treatment urgency) or other circumstance that precludes obtaining a history. Additional components to the History portion for decision making include: Review of Diagnostic tests. (i.e., labs, x-ray reports, EKG, MRI, etc.); Referrals/Consultations, current Medications, and health Risk factors.

Following the History, the physician SHOULD then perform a **Physical Exam** (or "PE"). **Exam** is the physical examination of the patient by the physician. The Physical Exam includes both objective and subjective assessments of the patient's physical being. Documentation of the Physical Exam is typically grouped by body system, such as Head, Eyes, Ears, Nose and Throat (often abbreviated "HEENT"), Respiratory, Genito-Urinary, etc. Objective medical measurements such as blood pressure, pulse rate, temperature, etc. are made and documented. There are also many subjective measurements made during the PE, such as visual observation and palpation, often with "best judgment" assessments as to size, location, and involvement of any abnormal finding.

Following the "PE" the physician should always document a clinical Impression or Diagnosis. An impression should address the clinical question and provide a precise diagnosis when possible and appropriate. The impression should not be a description of the findings, but rather a judgment as to their significance. When the clinician has not determined the patient's diagnosis, he or she should document symptoms, physical findings, differential diagnoses or "rule out".

After the clinical Impression the physician should always document the Plan of care which is the treatment plan for the patient.

The final entry is then the Date of service.

In review, regardless of what medical/surgical service provided by the physician, the basic requirements of documentation are:

The medical record should be complete and legible.

Each encounter should include:

- The chief complaint or reason for the encounter, and relevant history, examination findings and prior diagnostic test results;
  - Assessment, clinical impression or diagnosis;
  - Plan of care; and
  - Date of service and the identity of the observer.
- The reason for ordering tests and/or other ancillary services should be documented or easily inferred.
  - Diagnostic history should be readily available to the treating or consulting physician.
  - Appropriate health risk factors should be identified.
  - Progress, response or change to treatment and any changes in diagnosis should be recorded in the patient's chart.

1. HCFA website: <http://www.hcfa.gov>. Use search engine to find "Documentation Guidelines."
2. Physicians' Current Procedural Terminology 2001. American Medical Association, Chicago.
3. ICD-9: International Classification of Diseases, 9th revision.
4. Buppert, C. (2000). The Primary Care Provider's Guide to Compensation and Quality: How to get paid and not get sued. Gaithersburg, MD: Aspen Publishers, Inc. 1-800-638-8437.

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