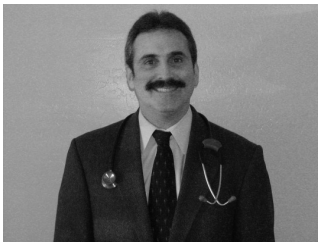
“When the rock drops”



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Imagine the following scenario; it’s an overcast dreary day in early winter and you and your family are traveling to the west coast for a long needed vacation. Your Piper Warrior has recently passed its annual inspection and has been deemed airworthy by your favorite airplane mechanic. You are instrument rated, current and proficient. Of course, you are feeling healthy and well rested for the trip.

After a thorough pre-flight you load up the bags and strap in the kids and taxi to the active runway. In a short time, you are off the ground and climbing to your requested IFR altitude. All is well on your vacation so far and the 2 hour flight passes quickly.

ATC vectors you to your final approach fix for an approach you have done many times in the past. The weather is a little worse than predicted and its overcast instrument meteorological conditions with light rain and moderate turbulence.

After the procedure turn you are cleared for an ILS approach. Suddenly, you get a twinge of pain in your back below your ribs and you feel sweaty and nauseated. The pain intensifies and becomes excruciating. Your wife and children are obviously concerned and fearful for their safety. ATC is talking to you and there is a lot of traffic in the area. You are flying your airplane without an autopilot in bad weather close to the ground.

In the above scenario, the pilot was suddenly incapacitated by pain due to a kidney stone. Kidney stones are a relatively common diagnosis. They are more common in men than women. Also, the prevalence rises dramatically in men over the age of 40, and continues to rise until the age of about 70. For woman, the prevalence peaks in their 50’s.

The kidney stone is a hard mass that developed from crystals resulting from increased concentration of stone salts such as calcium, oxalate, or urate. The crystals separate from the urine and build up on the inner surfaces of the kidney. The stone will either remain in the kidney where symptoms are rare, or drop into the ureter and block the flow of urine.

People who develop a kidney stone are more likely to develop more stones throughout their life time. A stone that remains in the kidney is known as nephrolithiasis. Ureterolithiasis is the medical term used to describe a kidney stone that has dropped out of the kidney and into the tube that leads to the bladder. This is usually when the pain develops.

The cause of a kidney stone may not be known in every case. It has been suggested that kidney stones can form as a result of diet, hereditary disorders, metabolic conditions and infection. Disorders that cause too much calcium in the urine, gout and chronic bowel inflammation can also lead to kidney stone formation.

The diagnosis is usually made by the symptoms of flank pain radiating to the lower abdomen or groin associated with microscopic blood on a urine test, and a visible stone seen by x-rays. The patient may also present with pale, cool and clammy skin as well as nausea, vomiting, and dehydration Occasionally specialized x-rays are needed such as CT scans or intravenous pyelograms.

Fortunately, most kidney stones will pass with hydration and pain management. If the stone is too large to pass, then an urologist may have to retrieve it surgically, through a scope (ureteroscopy) or break it down with shock- waves known as lithotripsy. These procedures have drastically decreased the need for open surgery. The chance of spontaneously passing a stone is greatest if the stone is 4 mm or less. However, if the stone becomes 6 mm or larger, then the chance for passage is very low. The specific location of the stone in the ureter determines the proper procedure to utilize.

As far as certification of pilots after a Kidney stone, the FAA has some requirements. If the airman had a single stone and passed it, then all that is needed is a statement from the treating physician and a copy of an x-ray report that confirms the stone is gone and that the pilot is currently stone free. The FAA will usually authorize the AME to issue a medical certificate without any time restriction or limitations in this case.

The more difficult situation occurs when there are retained stones in the kidney or history of recurrent episodes. In this case the pilot must be deferred to the FAA for initial certification. After the initial determination, the pilots' AME can issue subsequent medical certificates(all classes) in a program called *AME assisted special issuance* .In this case the pilot will be issued a valid FAA medical usually time-limited to 1 year. The FAA will typically ask for a current status letter regarding the retained stones size, location and likelihood of it causing symptoms. Also appropriate x-rays that confirm stability of the kidney stone is required.

There are many airmen that fail to report kidney stones to the FAA for fear of losing their medical. If a pilot has a known kidney stone, my advice would be to seek medical attention. The likelihood of keeping your medical is excellent, and there are a number of things that one can do for prevention after the cause of the stone is determined (such as medication, and diet modification).

As demonstrated with our pilot in the above scenario, a kidney stone can certainly be incapacitating. It is far better to treat them on the ground then suffer the consequences of developing symptoms in flight *when the rock drops.*