Dear Editor,

With reference to the recent article on venous air embolism during percutaneous nephrolithotomy published in your journal,\(^1\) we would like to reiterate that air embolism is a very rare and important complication that should always be kept in mind by endourologists performing percutaneous nephrolithotomy (PCNL). The position of the air embolism in the Clavien-Dindo classification system is not clear because it can present a wide spectrum ranging from Grade I complication with spontaneously resolution to Grade V complication that may be fatal. It was first defined by Miller et al. in 1984\(^2\) While sudden death following air embolism during PCNL was first reported by Hobin et al. in 1985.\(^3\) Air embolism occurring in PCNL has potential consequences involving the respiratory, cardiovascular and central nervous systems such as hypoxia, ST-T depression on the ECG, hypotension and tachycardia. However, if the embolus passes into the arterial system, the complications may become worse and its diagnosis may be possible only with echocardiography. This situation, also called paradoxical air embolism and was first described during PCNL by Seung-Hun Song et al. in 2007.\(^4\) It developed in this case through a patent foramen ovale but may also be possible through an undiagnosed atrial or ventricular septal defect. Air in the arterial system can cause neurological complications such as altered consciousness, loss of sensation and seizures. The most significant complication is “cryptogenic stroke.”\(^5\) Other possible complications include aphasia, coma, paraplegia, hemiplegia and quadriplegia. As discussed in this article, mortality and morbidity of the air embolism is determined by velocity, volume, pressure of the air, position of the patient during the procedure and situation of the heart. It should be known that other medical gases such as nitrogen, nitrogen dioxide, carbon dioxide and helium may also cause air embolism. The complication rate is relatively lower with soluble carbon dioxide. The volume of the collecting system is about 10-12 mL. Usually, 20-50 mL of air is used for pyelography. Most cases of air embolism during PCNL have been described for patients under general anesthesia, in the prone position and who have undergone pyelography with air. In the present case, 40 mL of air was used and the patient underwent the procedure in the prone position under general anesthesia. In 2013, Abbas Basiri et al. evaluated a total of 30,666 patients from 13 centers. In that series of patients, neurological complications were reported in 11 patients. In all cases, room air was used for pyelography with the patients being in the prone position under general anesthesia. Cases with complications were reported even though the amount of air used was close to the physiological volume (17 mL).\(^5\)

In conclusion, air embolism occurring during PCNL may result in serious complications such as death, coma, hypoxic encephalopathy, cryptogenic stroke, paraplegia, hemiplegia and quadriplegia, causing financial and emotional stress in the patients and their relatives. Urologists who prefer using air for pyelography during PCNL operation under general anesthesia should be aware of the potential risk of air embolism. They should especially know this rare complication and should be cautious on potential results in making diagnosis and planning the treatment.

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Dear Editor,

We have read the original article titled “A novel computer based stent registry to prevent retained stents: Will patient directed automated short message service and letter generator help?” by Sabharwal et al. with great interest.[1] Forgotten stents produce encrustations and stones, which may require either a retrograde or antegrade approach to remove them. Most importantly, these can be prevented by taking certain precautions. We would like to congratulate the authors for applying a novel computer-based stent registry to minimize this issue, especially in a big country like India.

However, certain problems may occur during this patient-directed automated information system. The targeted population for this novel registry mainly resides in villages. Frequent change of mobile numbers, network connectivity issues, or inadequate balance in the SIM-card can make this population difficult to reach. Additionally, short message service (SMS) generated in English language may not be that useful for people knowing only regional languages. Lack of documentation and patient’s unawareness about the presence of stent were the common reasons for retained stents as mentioned by authors in their 10-year retrospective study.[1] We believe that one important cause of forgotten stents is inadequate explanation to the patient at the time of discharge by the house officers/junior resident doctors as they write up the discharge summary with explanations for further follow-up. We suggest certain simple but effective means to combat these pitfalls.

As visual impressions have a lasting impact on memory, it is the practice at our institute to get an X-ray KUB postoperatively and show the images of the stent to the patient (after removal of other tubes/catheters), stressing that he/she needs to get it removed. Second, as most patients requiring stent insertion usually have urolithiasis, we send a specimen of the calculus for structural and morphological stone analysis. The patient is told that he will have to pay us a second visit, at which time his stent would be removed, and strategies for preventing stone formation can be planned based on the results of the stone analysis. This review date is calculated in advance and written in the discharge summary. Third, involving the local doctor (or referring physician) into the whole process with a phone call/letter would help, as he or her family members would often visit the family physician for primary care, enabling us to trace the patient easily. We like the authors’ idea of sending letters, and the advantage is that it can be written in the regional language, and it is unusual that people change their permanent address frequently. Postal mail is still frequently used in our country despite technological advances such as email and mobile messaging. However, technology is changing very fast, and we should certainly use it to our advantage in health care delivery, as proposed by the authors. We conclude that by adding certain simple measures mentioned above to the novel computer-based stent registry we can make it even more effective to decrease the incidence of retained “double J” stents.

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