Plastic ureteral stents are one of the most commonly used consumables in urology for establishing and maintaining ureteral patency after extrinsic or intrinsic obstruction or following endourological procedures. The use of stents is however associated with a number of complications including infection, migration, stent failure, and stent-related lower urinary tract symptom and encrustation, leading to stone formation and stent retention.

Forgotten and severely encrusted ureteric JJ stents are among the rarest yet most dreaded complications of upper tract endourology. Literature references are limited to small case series and expert reviews and as a result, management guidelines are lacking. It was often that treatment strategy relied on the individual ingenuity, resourcefulness, and the expertise of the operating surgeon and the team.

Standardization of the degree of stent encrustation has been proposed by Acosta-Miranda et al. in 2009 (known as the forgotten, encrusted, calcified FECal system). The FECal system quantified encrustation as Grades I–V, with Grades IV and V correlating with stent retention times of more than 2 years and associated with severe encrustation and stone formation of both proximal and distal ends of the double J stent.

Nevertheless, the development of miniaturized instruments and finer endoscopic skills has made even the most complex case seem achievable through minimally invasive surgery. Percutaneous nephrolitholapaxy in the supine position, originally described by Valdivia Uría et al., revolutionized large stone burden management and paved the way for endoscopic combined intrarenal surgery (ECIRS).

The successful management of the forgotten, severely encrusted, foreign body/double J stent in the urinary tract should involve a multimodality approach. Several patient factors need to be taken into consideration in addition to stone burden, especially comorbidities such as diabetes mellitus, obesity and also body habitus, skeletal deformities, and neurologic/mobility issues. All the above are directly related with less favorable surgical outcomes and decreased functional recovery following extensive renal stone surgery. More importantly, existing anatomic abnormality (i.e., duplex system) and preexisting or ensuing renal dysfunction have recently been demonstrated to affect Clavien–Dindo-reported complications and as such influence overall outcome.

Based on our experience, a carefully planned multimodality approach would provide the most realistic chances for complete removal of the encrusted stent with the least risk for postoperative complications. The presence or absence of current or previous urinary tract infection should be thoroughly sought, and any history of antibiotic sensitivities should guide appropriate intraoperative prophylaxis. Local antimicrobial use guidelines should be followed where available. Detailed and recent delineation of intrarenal and ureteric anatomy in the form of computed tomography urography (three-dimensional where available) and split renal function by using nuclear scintigraphy (preferably dimercaptosuccinic acid) should provide the backbone for both surgical planning and postoperative recovery. Although some evidences exist that neoadjuvant shockwave lithotripsy (SWL) would be useful to weaken and even at times reduce the stone burden, the risk of post-SWL fulminant urosepsis due to infected stone burden should always be considered.

Large (30F)-bore percutaneous nephrolithotomy (PCNL) should be regarded as the appropriate intervention for severe proximal encrustation and large pelvicalyceal stone burden. PCNL accompanied by ECIRS, using antegrade and retrograde laser ureterorenoscopy, in one or more sittings, offers the best chance for complete clearance of stent-related encrustation and lithiasis and successful stent removal.

As the ideal way of managing a situation is by preventing it from happening, use of hospital-run stent registries and novel coated stents in order to avoid stents from becoming forgotten and encrusted is already in use.

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