Daniel J. Berry, MD, (Mayo Clinic Rochester (MN)) moderated a symposium on “The ‘New Disease’: Taper Corrosion” at the 2017 Annual Meeting of the American Association of Hip and Knee Surgeons. Its aim was to define the state of the art in dealing with this emerging problem, from diagnosis to treatment and prevention. The take-home messages are summarized below.

**Diagnosis**

In his talk, Craig Della Valle, MD (Rush University Medical Center Chicago (IL)) explained that the symptoms of fretting corrosion might be similar to PJI, but the problems associated with taper corrosion typically appear with pain, the implant is revised at a mean of 4.3 years. According to Della Valle, metal levels are the “cornerstone” of diagnosis: with a well-functioning MoP bearing, they should be lower than 1 ppb in the serum. However, the cobalt level is generally above 1 ppb after revision arthroplasty. Findings should be confirmed with cross-sectional imaging for ALTR. Infection has to be ruled out, but beware: in cases of fretting corrosion, purulence can be seen, the synovial fluid WBC count can be falsely elevated, and even the Alpha defensin value can be false positive. For prevention of fretting corrosion, Della Valle recommended to make sure that the taper is dry and that a metal head is impacted (“hit hard”) with enough force.

**New data on corrosion**

Joshua Jacobs, MD (Rush University Medical Center Chicago (IL)) raised the question of the prevalence of fretting corrosion, trying to understand why we have seen more and more taper corrosion in the past five years. There may be a perception bias as concerns had already been raised in the 1980s and 1990s without causing much awareness of the problem. Nevertheless, Jacobs pointed out that existing data show a variation in prevalence by year of surgery between 0 % and 10.5 %. The implant-related factors are head size, taper geometry, taper tolerances, surface finish, flexural rigidity, material composition, metallurgy and multiple metal/metal contacts. According to Jacobs, there is a wide variation in the flexural rigidity of different taper designs. Overdiagnosis must be taken into account as there is a discrepancy between the prevalence of head-neck corrosion in retrieval studies and the cases of clinically relevant ALTR. In case of fretting corrosion, the cobalt levels in the serum are more elevated than the chromium levels. Reports of ALTR are always associated with modular junctions involving a CoCr alloy component. For prevention, Jacobs suggested to minimize the micromotion of modular junctions (tolerances), control the lever arm (head size, neck length), optimize surface finish, geometry (flexural rigidity), intraoperative assembly, tribocorrosion resistance of the alloy and material selection. He put up the question if cobalt alloy heads and stems should not be abandoned altogether.

**Revision**

Are ceramic heads and titanium sleeves always the best solution? Michael P. Bolognesi, MD (Duke University Medical Center Durham (NC)) found it hard to argue against this solution for the revision setting. The necessary preconditions are that the trunnion looks good and that using a metal head still could be considered. He pointed out that the majority of surgeons doing high numbers of revisions predominantly uses sleeved ceramic heads, which is probably the best available option. The speaker could not name a safest way to clean a used taper but pointed out that cleaning devices are available. He urged to cleanse with great effort and care. Several factors must be taken into account at the decision between retaining and exchanging cup and stem, e.g. quality of trunnion surface, stem design and fixation, state of the abductor, head size in place, cup position. There is not much data on soft tissue debridement, its extent remains subject to the surgeon’s intraoperative decision.

**Prevention**

Tad M. Mabry, MD (Mayo Clinic Rochester (MN)) dedicated his talk to the prevention. Quoting McGory and Matharu, he identified as the enemy the “Five I’s of complication”: infection, instability, implant loosening, ions and impairment. After THA revision for ALTR, there is an elevated risk of PJI, which is hard to distinguish from ALTR. In order to maximize stability, Mabry gave these recommendations: revise any component malposition, maximize femoral-head diameter, consider using dual mobility bearings, and lower the threshold for constrained liners. Implant loosening compromises the local bone stock and may be due to failed intra-operative recognition. When metal ions are detected in case of recurrent ALTR: remove CoCr implants, use heads made of ceramic or ceramicized metal. With the option of using titanium sleeves, the removal of well-fixed and well-positioned implants is rarely indicated. Mabry’s advice: Be aware of diagnosis, look for any symptomatic patient; the earlier the revision, the fewer the complications.