

### Rapid Fire Papers 2

#### [O47] CAN WE RELY ON HISTOPATHOLOGICAL RESULTS FOR THE DIAGNOSIS OF PROSTHETIC JOINT INFECTION?

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**Aim:** When a prosthetic joint infection (PJI) is suspected, guidelines recommend performing periprosthetic samples, at least one for histopathological examination and 3 to 6 for microbiological culture. The diagnosis of infection is based on the presence of neutrophil granulocytes whose number and morphology can be variable, resulting in definition of “acute” inflammation. The acute inflammation of periprosthetic tissue is supportive of infection. Since 2007, in our hospital, for all patients with suspected PJI who underwent surgery, from each sample taken by the surgeon, one part has been sent to the pathologist and the other one to the microbiologist. Our aim was to compare histopathological to microbiological results from samples taken intraoperatively at the same site.

**Method:** We conducted a retrospective study including all surgeries for which at least one couple “histopathology-culture” was found. Exclusion criterion was a history of antimicrobial treatment 2 weeks prior the surgery.

**Results:** From July 2007 to April 2015, 309 surgeries for suspected PJI were performed in 181 patients. Median age of the study population was 70 years, 60% of patients were male, 45% had a history of joint infection. The location of arthroplasty was knee in 50% of cases and hip in 46%, ankle and shoulder in 4%. Surgery was performed within one month after the last prosthetic surgery in 15% of cases. According to the criteria from the Musculoskeletal Infection Society, 60% of cases should have been considered as having an infection. The median number of samples per surgery was 4 (IQR 3-5) for histopathological examination and 5 (IQR 4-6) for culture. Finally, 1247 couples “histopathology-culture” were available. Among them, histopathological examination showed acute inflammation in 292 cases (23%) and subacute inflammation in 327 cases (26%). Microorganisms considered to be pathogenic were found in 582 samples (47%). The presence of neutrophil granulocytes was well correlated with the presence of those microorganisms (OR=4.1; IC 95% 3.1-5.5). As expected, the highest correlation between acute inflammation and positive culture was observed for early infection (< 1 month) (OR = 9; 3.6-23.4) and *Staphylococcus aureus* infection (OR = 4.8; 3.3-7.0). There was no correlation between acute or low-grade inflammation and anaerobic or *Candida* infection.

**Conclusions:** Our results confirmed histopathological examination is better correlated with culture in acute infection and/or infection due to highly virulent bacteria but must be interpreted with caution in case of chronic infection or infections due to microorganisms with low virulence.