

## Adverse Clinical Outcomes in a Primary Modular Neck/Stem System

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**Introduction:** Adverse clinical outcomes due to corrosion reactions have been described with neck modular stems in total hip arthroplasty. One stem, the ABG-Modular has been voluntarily recalled due to higher than anticipated rates of failure in post-market analysis. We report our 2-year results using this stem.

**Materials and Methods:** 215 ABG-Modular stems were implanted in 202 patients. Cobalt-chrome heads were used in 95% of cases. 2-year clinical follow-up was available in 171 patients (85%). Patients were evaluated during clinical visits or by phone to assess for the presence of clinical symptoms.

**Results:** 55% of the patients had no clinical symptoms, 30% percent had groin pain possibly related to a corrosion reaction, and 15% had symptoms other than groin pain. The average time from surgery to onset of groin pain was 16.8 months. For patients experiencing symptoms of any type mean cobalt levels were 3.7ugL (range 0.5-13.2) compared to 2.5 ugL (range 0.3-3.9 ug/L) in asymptomatic patients ( $p=0.019$ ). Abnormal MRI or ultrasound results including fluid collections and soft tissue masses were seen in 50% of patients with groin pain and 30% of patients with other clinical symptoms. Twenty patients (12%) have either undergone or scheduled revision surgery because of progressively disabling groin pain. Evidence of corrosion was seen at surgery in all patients. No peri-articular muscle damage was seen in any patient. Clinical symptoms have improved in all patients who underwent revision surgery.

**Conclusion:** Despite modest elevations in serum cobalt levels, abnormal imaging studies, adverse clinical symptoms, and early failure related to corrosion has been identified in 45% of patients with the ABG-Modular stem. The mating a cobalt chrome modular neck to a titanium stem in the ABG-Modular prosthesis, which mates a cobalt chrome modular neck to a titanium stem in conjunction with a cobalt chrome head, frequently results in a corrosion.

