Dental issues among divers

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Dear Editor,

I read with interest the article 'Crown cementing strategies for naval divers'.¹ I wish to congratulate the author for highlighting this pertinent topic. I have the following observations, for consideration by the author:

1. It is important for the naval divers to have a good biting fitness of the teeth as well as a good oral seal so as to allow a secure retention of the mouthpiece of the diving set.² This involves constant biting on the mouth piece in certain sets such as oxygen 57®, which are utilised for operational diving. Any compromise on the strength of the crown and its cement, of the biting teeth may lead to a loss of the mouth piece and/or aspiration of the broken prosthesis, with disastrous outcomes. Therefore, the tensile strength study of the crown, preferably of the incisors, should take into account the fact that they are not just being stressed from the increased ambient pressure but also from the constant biting action of the diver.¹
2. The aerodontalgia induced damage may be visualised by radiography and transillumination with high intensity light to demonstrate micro fractures.³ The author has not described whether these techniques were used to determine the degree of subjective damage to the tooth, and if so, what were the results of those studies.
3. One of the aetiologies of aerodontalgia is the delivery of breathing gas at immense positive pressure (about 7 ATA [atmosphere absolute] over the ambient pressure) from the self-contained underwater breathing apparatus (SCUBA) gas regulators, forcing the gas into the cement which expands during the ascent phase.³ Further, the pressures involved in diving by a clearance diver in the navy may reach up to 6 ATA for durations up to an hour or more; hence the pressures acting on the cement may be in the range of 6–7 ATA in an actual diving situation. In this study, the specimens were exposed to 3 ATA for six minutes (including compression),

which is considerably less than the actual dive conditions. Had the author exposed the specimens to greater pressures, for longer durations, mimicking actual dive circumstances, the results may have been different.

4. Naval divers are required to perform underwater electric welding and cutting during salvage operations. This has been known to cause dental electrolysis, due to the electrical field set up by the equipment, causing metal in the dental fillings and cements to be released producing metallic taste and the premature destruction of the dental prosthesis.⁴ Does the cement material, resin cement, recommended by the author for use in divers and submariners, offer better strength to withstand electrolysis over zinc phosphate and glass ionomer cement?

REFERENCES

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(The authors have not replied to the above Letter to the Editor despite numerous reminders therefore the letters to editor are published without author reply.)