dentaltraumaguide.org) which is useful as an evidence-based guide to managing all types of trauma to primary and secondary teeth.

**J. R. Allison and G. Garlington, Newcastle**

1. Gilchrist F. Primary care dentists' experience of treating avulsed permanent teeth. *Br Dent J* 2015; **219:** 216–217.
2. Kenny K P, Day P F, Douglas G V A, Chadwick B L. Primary care dentists' experience of treating avulsed permanent teeth. *Br Dent J* 2015; **219:** E4.
3. Day P F, Gregg T A. Treatment of avulsed permanent teeth in children. British Society of Paediatrc Dentistry, 2012. Online information available at http://bspd.co.uk/Portals/0/Public/Files/Guidelines/avulsion_guidelines_v7_final_.pdf (accessed November 2015).
4. Andersson L, Andreasen J O, Day P, Heithersay G, Trope M, Diangelis A J *et al.* International Association of Dental Traumatology guidelines for the management of traumatic dental injuries: 2. Avulsion of permanent teeth. *Dent Traumatol* 2012; **28**: 88–96.

**DOI: 10.1038/sj.bdj.2015.902**

## PRESCRIBING

### Congratulations

Sir, we congratulate N. Beacher *et al.* for bringing the antibiotic-associated complications of Clostridium difficile-associated disease (CDAD) to the attention of dentists.[1] Although their coverage of the topic was comprehensive, there are recently published data specifically related to the dental use of amoxicillin and clindamycin for the prevention of infective endocarditis and the associated incidence of CDAD.[2] We surveyed yellow card adverse reaction reports between 1963 and 2014 for all prescriptions of a single 3 g oral dose of amoxicillin or a single 600 mg oral dose of clindamycin. The adverse reaction rate for amoxicillin was very low with zero fatal and 22.62 non-fatal adverse reactions reported per million prescriptions – of which 40% were allergy-related and 15% could have been CDAD-related. In contrast, the adverse reaction rate with clindamycin was much higher with 12.6 fatal and 149.1 non-fatal adverse reactions per million prescriptions with all but one of the fatal reactions due to CDAD and the majority of the non-fatal reactions (57%) likely due to CDAD with only 22% allergy-related. While demonstrating that CDAD can occur with amoxicillin, our data suggest that a single 3 g oral dose used for antibiotic prophylaxis is extremely safe. In contrast, a single oral dose of clindamycin appears to cause CDAD with a much higher frequency and severity, including death, than amoxicillin. Indeed, the propensity for a single dose of clindamycin to cause CDAD appeared to be similar to that of more prolonged courses of clindamycin used for treating infections. This was somewhat unanticipated as it had previously been thought that a single dose would be unlikely to predispose to the development of CDAD.

**M. Thornhill, Sheffield; M. Dayer, Taunton; B. Prendergast, London; L. Baddour, Rochester, USA; S. Jones, New York, USA; P. Lockhart, Charlotte, USA**

1. Beacher N, Sweeney M P, Bagg J. Dentists, antibiotics and Clostridium difficile-associated disease. *Br Dent J* 2015; **219:** 275–279.
2. Thornhill M H, Dayer M J, Prendergast B, Baddour L M, Jones S, Lockhart P B. Incidence and nature of adverse reactions to antibiotics used as endocarditis prophylaxis. *J Antimicrob Chemother* 2015; **70:** 2382–2388.

**DOI: 10.1038/sj.bdj.2015.903**

### Anti-thrombotic agents

Anti-thrombotic agents are used for treatment of thrombosis – to prevent a thrombus enlarging, or to prevent thrombosis in people at risk, such as those who have:

- Atrial fibrillation
- Blood disorders
- Endocarditis
- Mechanical heart valves
- Mitral stenosis
- Hip or knee replacements.

All anti-thrombotic agents produce a bleeding tendency and may cause post-operative bleeding. Dental preventive care is thus especially important in order to minimise the need for surgical intervention. In general, anti-thrombotic agents should be stopped before surgery only where the risk of post-operative bleeding is high (eg major surgery) or where the consequences of even minor bleeding are significant (eg retinal and intracranial surgery) though, for other minor surgery, drug dose reductions are rarely needed and indeed may put the patient at risk from thromboses which can be lethal.[1] This should be discussed with the patient, who also must be warned of the risk of intra- and post-operative bleeding and intra/extra-oral bruising.

The two main classes of anti-thrombotic drugs are anticoagulants and antiplatelet drugs. Oral anticoagulants include:

- Vitamin K antagonists (VKAs -such as warfarin/coumarins)
- Newer oral anticoagulants (NOACs - such as dabigatran). The latter, such as direct thrombin inhibitors (DTI) (gatrans) and anti-Xa (xabans), target respectively the single coagulation enzymes thrombin (dabigatran) or factor Xa (apixaban, rivaroxaban, and edoxaban). In contrast to warfarin, NOACs have less thrombotic events and lower rates of major bleeding events and do not require monitoring in the same way as for warfarin using the prothrombin time or INR.2 and are thus replacing VKAs for many situations. Dabigatran and rivaroxaban are quickly absorbed and have short half-lives compared to warfarin so, in the event of excessive anticoagulant activity, discontinuing the drug is usually sufficient. Dabigatran and rivaroxaban have to date had no antidotes and if reversal is essential, haemodialysis, coagulation factor concentrates, and an antibody fragment which binds dabigatran (aDabi-Fab) were recommended to reverse the effects.[3]

The U.S. Food and Drug Administration (FDA) has now just granted approval of Praxbind (idarucizumab),[4] a humanised antibody fragment, or Fab, which binds specifically to dabigatran molecules only, neutralising their anticoagulant effect without interfering with the blood coagulation cascade, for reversal of the dabigatran anticoagulant effects if needed for emergency surgery/urgent procedures or in life-threatening or uncontrolled bleeding.[5,6]

Biological agents clearly will have increasing utility in healthcare well beyond those already reported.

**C. Scully, London**
**N. A. Robinson, Singapore**

1. Scully C. Scully's Medical Problems in Dentistry, 7th ed. Churchill Livingstone, Elservier, 2014.
2. Griffiths M J, Scully C. New anticoagulants. *Br Dent J* 2012; **213:** 96.
3. Griffiths M J, Scully C, Robinson A. Anticoagulant update. *Br Dent J* 2013; **215:** 103–104.
4. FDA News Release, 16 Oct 2015. FDA approves Praxbind, the first reversal agent for the anticoagulant Pradaxa. Available online at http://www.fda.gov/NewsEvents/Newsroom/PressAnnouncements/ucm467300.htm (Accessed November 2015).
5. Glund S *et al.* A randomised study in healthy volunteers to investigate the safety, tolerability and pharmacokinetics of idarucizumab, a specific antidote to dabigatran. *Thromb Haemost* 2015; **113:** 943–951.
6. Pollack C V *et al.* Idarucizumab for dabigatran reversal. *N Engl J Med* 2015; **373:** 511–520.
7. Georgakopoulou E, Scully C. Biological agents; what they are, how they can affect oral health and how they can modulate oral health care. *Br Dent J* 2015; **12:** 671–677.

**DOI: 10.1038/sj.bdj.2015.904**

## ERRATUM

Letters *BDJ* 2015; **219:** 420-421

*Case report: A bridge too far!*

The caption to Figure 2 in this letter was incorrect. It should have read as follows:

'Fig. 2 The extracted 9-unit cantilever bridge'.

We apologise to the author and our readers for any inconvenience caused by this error.

**DOI: 10.1038/sj.bdj.2015.905**