



Closure

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No one knows whether death may not be the greatest of all blessings for a man, yet men fear it as if they knew it was the greatest of evils.

Attributed to Socrates (Greek philosopher)
by Plato.

The word closure means different things to many people. If you are working in a factory or an airline (during the current pandemic) the word has a catastrophic meaning if it means severe reduction in income and loss of a sense of purpose. It may also mean complete or partial closure of a road or tunnel sometimes causing major inconvenience. In medicine the word also has many different meanings. Closure is what happens to a coffin before burial. Another definition is a bringing together of edges to form wound closure after laceration or surgery.

In the early 1970s, when I was an intern, my main function in surgery was to cut the sutures for the surgeon. One of the standard jokes was to ask the surgeon: ‘*which way would you like me to cut the sutures; too long or too short?*’ No doubt with the widespread use of laparoscopic surgery the cutting of sutures has become less frequent. More recently the word closure appears frequently in the media, meaning to heal a personal loss or trauma. Although the word has clearly entered the lexicon, I do not remember ever hearing it, in that context, during my medical training.

Although a lot has been written about the complications of HCT to the recipient and, to a far lesser extent, to the donor, the literature on the psychological effects on donors of unsuccessful allogeneic haemopoietic cell transplants (HCT) is surprisingly sparse. In general, the literature concentrates on paediatric experience rather than HCT in adults [1]. Switzer and colleagues found, rather

surprisingly, that donors’ reaction to the death of an HCT recipient to be associated with more positive psychological outcomes when the HCT was unsuccessful. The authors found more cohesion between family members and donors as it was felt that the donor had done his/her best in spite of the outcome [2]. There is some mention of psychological effects on donors but this is mainly in the nursing literature and rarely in the medical journals. Interestingly there is little mention of effects on donors in the light of an unsuccessful HCT in the most recent edition of the EBMT handbook [3]. However, it is probably not surprising as transplant doctors are not generally interested in the psychological effects of illness [4]. With the increasing frequency of HCT hopefully doctors will take more interest in the psychological impact on donors and more prospective studies undertaken.

Closure is very important in the wine world too, but has a very different meaning. Closure is important for ageing, transport of wine, and protecting wine from too much contact with oxygen. From the perspective of the wine maker and the wine drinker, reliable transportation in glass bottles remains *de rigueur*. Although closure with cork and pitch was used with amphorae in ancient times the widespread use of cork was popularised in the 17th century with the development of standardised wine bottles in England and subsequently spread around the world [5].

Wine corks come from the bark of the cork oak tree *Quercus suber*, which grows in the Western Mediterranean and North Africa in sandy soil. Portugal is now a major supplier. The bark of the cork tree that has the wonderful quality of creating a reliable seal between the wine and the environment, however, suffers from contamination with 2,4,6-trichloroanisole (TCA) (Fig. 1), which gives wine a musty flavour, referred to as ‘corked’ (sometimes called the wet sock smell). It is a good idea to smell the cork as once you have come across a ‘corked’ wine you will never forget the smell. If the opportunity to smell the cork is not afforded to you pour a few mls of wine into your glass and smell it, before swilling. TCA is a by-product of fungus and chlorine and unfortunately cork trees are endemically infected. Although many methods have been explored, including blast

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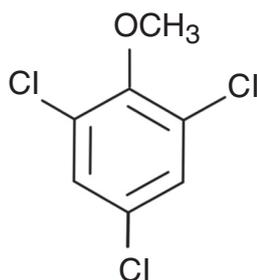


Fig. 1 2,4,6-trichloroanisole (TCA). The most common cause of a ‘corked’ wine. It gives wine a ‘musty’ taste and smell.



Fig. 2 Length and consistency of corks. Top: a cheap composite cork, next a cork from a good bottle of Bordeaux, next from Rioja and lastly, cork from a cheap Claret. Photograph Shaun McCann.

freezing [6], the presence of TCA has stimulated the search for other forms of closure. However, many wine drinkers are intrigued by the ‘pop’ as the cork is extracted from the bottle but this may be a form of snobbery. Corks are eco-friendly and recyclable (Fig. 2). Some wine-producing areas, such as Chianti Classico in Tuscany, insist on natural corks being used for closure. Synthetic corks are not allowed! What is allowed are agglomerate corks made of little pieces of cork held together with glue, not the best thing but better than synthetic corks (personal communication from Léon Femfert, oenologist at Fattoria Nittardi, Tuscany). Generally long corks are used for fine wines, which are destined for prolonged storage before consumption.

So, what other types of closure are available? Glass stoppers have been used from ancient times but are



Fig. 3 Glass stoppers for wine closure from Sinskey Vineyard. Uncommon and expensive. Photograph Shaun McCann.

unpopular today (Fig. 3). I have only come across them in the Sinskey Vineyard in Napa Valley, California, but they are expensive and the requirement for specially made bottles makes them unpopular but of course, they eliminate contamination with TCA. They have a silicone O-ring, which provides an excellent seal; however, the seal is so good as to prevent any exchange of O₂ between the wine and the environment. Whether they are suitable for prolonged storage remains unclear.

Contamination of corks with TCA was the main driving force behind the development of the screw cap and synthetic corks. Synthetic corks are free of TCA but are notoriously difficult to extract and almost impossible to reinsert into the bottle (rarely a problem in our house).

Screw caps are now very popular for young wines. Ideal for a picnic if you have forgotten to pack the corkscrew. They are common in mass-produced, cheaper (but sometimes excellent value), wines found in supermarkets. Originally called Stelvin, these closures have a foam-like liner, which seal the bottle opening. Unfortunately, there is no ‘cork pop’ and their use for ageing fine wines remains disputed.

Zork, Australian, with which I have no experience, apparently has the convenience of a screw cap with a ‘cork pop’, but is expensive.

So, in the world of medicine, closure means coming to terms, usually with an untoward event, whereas in the wine world the type of closure is paramount and the choice of material may influence the final taste of the wine and its enjoyment.

Compliance with ethical standards

Conflict of interest The author declares that he has no conflict of interest.

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