

RISKS OF ORTHODONTIC TREATMENT GUIDANCE ON INFORMING PATIENTS

Orthodontic treatment is a benefit to patients both aesthetically, functionally and psychologically. However, prior to any treatment, patients need to be fully informed and understand the tests and treatment that are proposed. Benefits and risks of possible treatment options need to be explained to each patient prior to starting treatment. This guidance relates to information patients should be given regarding these risks and benefits. Patients should be informed of the risks prior to giving consent and a clinician may be deemed in breach of their duty of care if they do not inform the patient of the risks.

Providing information to patients about orthodontic treatment

The likely benefits in terms of appearance, function, or health from treatment should be explained to all patients. Care should be taken not to make claims about treatment that go beyond the available evidence. The GDC Standards Guidance states that patients must give informed consent before treatment is carried out. Patients must be competent to give this consent and it must be given voluntarily. It should be made clear where uncertainty exists about outcomes. Patients should be clear about what the treatment will and will not achieve, particularly if the treatment objectives are limited.

Risks of orthodontic treatment

Adverse effects may occur as a result of orthodontic treatment, even if treatment is carried out competently. Patients must be made aware of, and understand, the risks involved in treatment, so that they can make an informed choice before starting. If there is a significant material risk, which would affect the judgment of a reasonable patient in determining whether they should undergo treatment, then it is the responsibility of the orthodontist to inform the patient of that risk (*Montgomery v Lanarkshire Health Board*). Consideration should be given to which risks of orthodontic treatment patients would consider “significant”. Patients should be informed of adverse effects which occur frequently or which occur rarely, but with serious consequences when they do. The general known risks of treatment should be explained to all patients; however, it is the clinician’s responsibility to identify and discuss specific risks that may be greater for an individual patient based on clinical presentation. Most of the commonly occurring adverse effects of orthodontic treatment are preventable and patients must be given sufficient information to minimise these risks.

Commonly occurring adverse effects

Pain and discomfort occurs commonly after placement or adjustment of orthodontic appliances. **Mucosal damage** also occurs frequently during treatment and patients should be advised how to deal with this.

Most patients will also experience some **gingival inflammation** when appliances are worn. These changes are usually reversible and resolve once the appliances are removed. However, poor oral hygiene can cause irreversible damage. There is generally no increase in the risk of periodontal disease in most patients but a few can have **attachment loss or gingival recession**. Active periodontal disease must be treated and stabilized before the commencement of orthodontic treatment.

Demineralisation and caries are also common risks of orthodontic treatment with both fixed and removable appliances. Patients must be made aware of this and should receive advice and support on how to prevent them.

Some degree of **pulpal hyperaemia** and inflammation can be expected during orthodontic tooth movement. In general such changes are reversible and cause no long-term problems. In teeth that have previously been traumatised, the blood supply may already be compromised with a consequently greater risk of loss of vitality. Patients with a history of, or signs of, previous trauma should be warned appropriately about the risk of loss of vitality.

Idiopathic root resorption is an unavoidable consequence of orthodontic tooth movement and believed to occur in all patients. However, these changes to the roots are usually insignificant. This should be explained to patients, with reassurance that small amounts of resorption should not affect the long-term health of the teeth.

Tooth movement (relapse) will occur after orthodontic treatment and retention is needed in most cases. Patients should be made aware of this before the start of treatment. The extent of tooth movement after treatment is partly dependant on pre-treatment tooth position but may be limited by appropriate retention. The need for retention of treatment should be fully explained prior to treatment and it may be advisable to further discuss the need for retention at the end of treatment and revalidate the consent process. Diastemas, rotations, and increased overbite all have a high potential for relapse as well as those cases that have received significant arch expansion. If long-term or permanent retention is planned, to prevent relapse in these patients, they should be informed of this and of any associated anticipated risks at the start of treatment together with any financial implications.

Although an estimate of **treatment duration** can be given to the patient, this may not always be accurate due to biological factors such as speed of tooth movement or patient factors such as appliance breakages or failure to attend appointments. Nevertheless, the patient should be given an idea of the likely duration of their active treatment together with an explanation as to why this cannot be guaranteed.

Less common but clinically significant risks

Extensive root resorption occurs rarely but if it does occur, it may affect the health of the teeth. There are no truly reliable predictive factors, although some evidence suggests that patients whose teeth have abnormal root form may have an increased risk. There is also evidence that treatment-related root resorption is correlated with the distance the apex moves, the treatment time and the use of heavy forces. When patients are thought to have a higher risk than normal of extensive resorption, they should be counselled appropriately. However, extensive resorption can occur unexpectedly due to unpredictable individual susceptibility. It would therefore be prudent to warn all patients of the small risk of extensive resorption before starting treatment.

Enamel trauma may also occur during treatment due to wear from brackets in the lower arch. This is a particular problem with ceramic brackets. Clinicians should be aware of this risk in patients wearing ceramic brackets and appropriate steps should be taken to avoid this damage.

On occasion **ankylosis** due to trauma or other unknown factors may prevent the eruption of an unerupted or impacted tooth.

The risks involved in **wearing headgear**, and the need to warn patients of these risks, have been widely reported in the literature. More information can be found at www.bos.org.uk/MembersAdviceSheets

Nickel allergy is a risk that should be found from taking an appropriate medical history and acted on. The risks to cardiac patients from **infective endocarditis** must also be assessed fully. More information can be found at www.nice.org.uk

Orthognathic treatment also carries risks for those patients undertaking this treatment modality. The orthodontic risks are as those listed above. For the surgical aspect of treatment, the main risks include paraesthesia of the inferior dental nerve, lingual nerve, infraorbital nerve and more rarely the greater palatine nerve. Other reported risks are infection of bone plates, relapse, unfavourable splits and temporomandibular disorders. These risks will be discussed fully by the maxillofacial surgeon during the consent process but the GDC Standards confirm the need to individually ensure consent is valid, not just to rely on another team member to take the patient through the consent process.

Balance of benefits and risks

The balance of benefit and risk is important when making a decision about whether to treat. Even if the patient decides to accept the risks, the orthodontist is entitled to refuse to provide treatment if he/she feels that the balance of risk/benefit is unacceptable.

Summary

In order for patients to decide whether to undergo orthodontic treatment, they need to be informed about, and understand, the purpose and nature of treatment, its benefits, risks, and alternatives. A clinician may be in breach of their duty of care in not providing relevant information about risks before the patient gives consent to a procedure. Information given to patients must be thoroughly recorded in the clinical records and it would be prudent to ask patients or their parents/carers to sign a consent form prior to starting any treatment. A treatment estimate should be provided and signed. It cannot be over-emphasised that a signed consent form in the absence of comprehensive clinical records is not evidence of valid consent. Explanations should be in a language that the patient understands and enough time should be given to allow the patient to understand the information properly. Written information can be helpful in improving patients' understanding of risks but is no substitute for a detailed discussion and documentation of the discussion. The British Orthodontic Society produce Patient Information Leaflets (www.bos.org.uk/PILs) on a number of subjects which can be useful in this regard.

References

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Updated by the Clinical Governance Directorate of the British Orthodontic Society 2017.
Recommendations may change in the light of new evidence.

