Essential anatomy: why anatomical words matter when it comes to subdermal implants

The current clinical guideline on progestogen-only implants produced by the Faculty of Sexual and Reproductive Health (FSRH) Clinical Effectiveness Unit was written in February 2014 and is due to be updated within the next year.

We are all familiar with the risks associated with an implant insertion which is too deep; these risks include neural or vascular damage, paraesthesia, migration, and rarely intravascular migration. Deep insertions also mean that the implant may be more difficult to remove, which may result in repeat patient appointments and additional scans or imaging, and it may be impossible to remove without an onward surgical referral.[1 2]

Given this, healthcare professionals (HCPs) are understandably eager to minimise the risk of deep insertion for the patient, and an updated clinical guideline would certainly help this.

Although within the majority of the 2014 guidance the correct insertion depth is accurately referred to as 'subdermal', in subsection 9.2 'Deep Insertion' the guidance confusingly uses the word subcutaneously in brackets after the word subdermally.[2]

> '9.2 Deep insertion
> When inserted correctly the implant should be situated subdermally (subcutaneously), just under the skin'.[2]

Unfortunately the inclusion of the word subcutaneously introduces potential confusion; it is defined differently in different literature sources.

In the UK, the following are the established scientific names for the layers of the skin[3]:

- Epidermis: outer layer of skin—squamous cells, basal cells and melanocytes.
- Dermis: contains blood vessels, lymphatic vessels and glands.
- Hypodermis: connective tissue and fat.

It is the hypodermis layer which is often referred to as the subcutaneous layer, and thereby introduces potential confusion.

For example, it is commonly accepted that a subcutaneous injection is given within the hypodermis layer; however, the word subdermal is used to mean below the dermal layer, which would also be within the hypodermis. Therefore, the use of the word subdermal immediately before the word subcutaneous may lead readers to interpret the meaning as being below the hypodermis rather than within it, and therefore may influence the depth of insertion.

As a temporary measure to improve clarity regarding the correct depth of insertion, there is an advisory note on the FSRH website instructing HCPs to read the clinical guidance in conjunction with the appropriate clinical statements issued. The 'Statement from the Clinical Effectiveness Unit - Intravascular insertion of Nexplanon® June 2016' states that 'the CEU reminds healthcare professionals (HCPs) to fit Nexplanon subdermally', and this is a useful addition to the guideline until it can be updated.[4] However, there is the concern that some HCPs may not refer to the website frequently enough to have read the statements, or some may not consider them relevant to themselves if they are not a specialist within the field.

Unfortunately, it therefore remains misleading that the current guideline uses the words subdermal and subcutaneous as if they are synonymous. To avoid any potential for confusion, it may be wise for the new guideline to stick to the word subdermal and use the more scientific term, hypodermis, alongside a diagram. We eagerly anticipate the clarity that the updated guideline will bring, and in the meantime maybe we should all return to our anatomy books ourselves?

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