Illegal and Original Toxin Discrimination with the Help of Wood's Light

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Dear Editor,

In recent years, the field of aesthetic medicine has experienced a significant increase in demand for minimally invasive cosmetic procedures. Botulinum toxin injections have become particularly prominent due to their effectiveness in treating dynamic wrinkles, hyperhidrosis, and neuromuscular conditions. However, parallel to this rise, there has been a concerning increase in illegally imported and unapproved toxin-containing products. These counterfeit formulations, often produced without standardized manufacturing protocols or adequate oversight, pose serious risks to patient safety and clinical practice.

One of the main drivers of illegal toxin use is financial motivation. Because licensed botulinum toxin products are costly and strictly regulated, smuggled products are sometimes used to reduce expenses. These toxins are often processed from unauthorized raw materials and distributed without quality control, making dose standardization and safety monitoring impossible. This increases the risk of adverse events, including botulism, a rare but potentially life-threatening condition.[1] Recent real-world data further highlight this risk, as a 2024 report from the United States documented multiple cases of serious illness following administration of presumed counterfeit botulinum toxin in nonmedical settings.[2] Consequently, distinguishing authentic toxin products from counterfeit ones has become a critical clinical responsibility. Among toxins used illicitly, abobotulinumtoxinA is one of the most frequently counterfeited formulations. Counterfeit packaging and vial designs often closely resemble genuine products, making visual differentiation challenging even for experienced clinicians. Therefore, practical methods to support authenticity verification are needed.

In this context, Wood's light examination represents a simple and accessible tool. Wood's light emits long-wave ultraviolet radiation at approximately 365 nm and is widely used in dermatology for diagnostic purposes. When Wood's light is applied to toxin packaging, a key distinguishing feature can be observed: authentic abobotulinumtoxinA products display a bright, reflective hologram, whereas counterfeit products lack this fluorescence (Figure 1).

In the present study, 156 abobotulinumtoxinA vials were examined, comprising 78 authentic and 78 counterfeit vials. All vials were independently assessed under Wood's light, and findings were consistent across assessments. Original products uniformly demonstrated a bright holographic reflection, whereas none of the counterfeit vials exhibited fluorescence, indicating reproducible differentiation between original and counterfeit products.

Wood's light is readily available in most dermatology and aesthetic clinics, and the examination requires only a few seconds. Incorporation of this step into routine practice may strengthen product authentication, reduce complications, and enhance patient confidence.

Manufacturer documentation supports hologram-based security features as authenticity markers. Official prescribing information for abobotulinumtoxinA (DYSPORT®) states

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that the outer carton contains a unique hologram and advises clinicians not to use the product if the hologram is absent.[3] Similarly, FDA-approved labeling for onabotulinumtoxinA (BOTOX®) specifies a holographic film on the vial label as an anti-counterfeiting measure.[4] These features are manufacturer-defined and brand-specific rather than universal. Hologram technology is widely used as a high-security anti-counterfeiting method in banknotes, official documents, and luxury goods. Nevertheless, Wood's light examination should be considered a supportive screening tool rather than a definitive validation method. False-negative results may occur because of packaging damage or lighting conditions, whereas false-positive results are theoretically possible if counterfeit products imitate holographic elements. A limitation of this evaluation is its focus on a single formulation. AbobotulinumtoxinA was selected because it is the botulinum toxin product most commonly counterfeited, both globally and in our country. Broader generalization to other formulations should be approached with caution. Clinicians also bear ethical and legal responsibility for obtaining toxin products exclusively from authorized supply chains. In many countries, including ours, distribution is regulated through traceability systems such as global location number–based identification. Products obtained outside these systems pose legal, professional, and patient-safety risks and should be reported to the relevant authorities or the manufacturers.

Figure 1. Image of the original and illegal product under Wood light. Note the shining hologram on the original product on the left

Differentiation between original and counterfeit botulinum toxin products is a medical necessity. Wood's lamp examination is a fast, inexpensive, and practical adjunctive method that can enhance clinical safety when used in conjunction with regulatory compliance and manufacturer verification.

Footnotes

Authorship Contributions

Concept: M.Ş., A.Y., G.A., Design: M.Ş., A.Y., G.A., Data Collection or Processing: A.Y., A.Ç.T., Analysis or Interpretation: A.Y., G.A., Literature Search: M.Ş., A.Y., A.Ç.T., Writing: M.Ş., A.Y., G.A., A.Ç.T.

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