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Application of Hypnosis in Ophthalmology: Eyelid Repair in a Traumatic Patient, a Case Report

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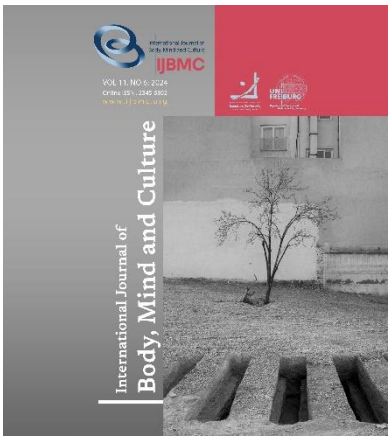

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ABSTRACT

Objective: This study aims to examine the application of hypnosis in ophthalmology.

Methods and Materials: In this case report, the author describes the application of clinical hypnosis as the sole sedation and analgesic method for eyelid repair in a traumatic patient. The patient, a 30-year-old Persian male, was admitted to the emergency ward of Kashani Hospital in Isfahan, Iran, with a chief complaint of a left upper eyelid injury resulting from a motorbike accident. Since the patient refused any local anesthesia or sedation (due to his concern related to a previous history of allergic reactions to lidocaine), suturing under hypnosis sedation was proposed. A 15-minute hypnosis session was conducted, incorporating sedation and analgesic suggestions. The laceration was repaired, and the patient's hypnotic state was terminated to natural awareness. The patient reported no pain associated with the sutures and expressed a sense of absolute freshness upon completion of the procedure. Furthermore, his visual analogue scale scores for pain and anxiety decreased compared to the admission time.

Findings: This report demonstrates a validated approach for minor reconstructive surgeries (e.g. eyelid repair), particularly when concerns arise regarding sedative drug allergies or side effects. Moreover, it highlights the potential applications of hypnosis in other ophthalmic surgeries, psychosomatic-related complaints, and medication adherence.

Conclusion: The author suggests further exploration and expansion of hypnosis in the field of ophthalmology (hypno-ophthalmology).

Keywords: Hypnosis; Suggestion; Anesthesia; Conscious Sedation; Ophthalmology; Eyelids

Introduction

Hypnosis is a state of consciousness in which individuals become more responsive to suggestions through their subconscious minds. The documented history of hypnosis use in surgery dates back to the pioneering work of Jules Cloquet and John Elliotson in the 1830s, followed by James Esdaile's extensive use of hypnosis as the sole anesthetic component for numerous surgeries during the years 1845-1851 (Wobst, 2007). The British Medical Association and American Medical Association endorsed the use of hypnosis in 1955 and 1958 respectively (Wobst, 2007), and clinical hypnosis officially gained recognition as an alternative therapeutic technique within the medical literature in the 1990s (Hammond, 2013; Hilgard, 1993). Surgical procedures are a common phenomenon in human life, often accompanied by stressors and side effects. Interventions that can reduce mental and physical complications are therefore welcomed. A recent meta-analysis on the application of hypnosis in modern medical surgeries found that hypnosis could reduce procedure time, pain, mental distress, and medication consumption, in addition to facilitating faster recovery periods for patients (Holler et al., 2021). Another meta-analysis has

also reported reductions in postoperative anxiety and pain when hypnosis is utilized (Kekecs et al., 2014).

Injuries of the facial soft tissue comprise almost ten percent of emergency room visits. Cosmetic concerns, complex anatomical structure, and the potential for post-traumatic functional sequelae have made this an important issue that demands adequate attention and expertise to address (Ko et al., 2021). The eyelids play a key role in protection, lubrication, light regulation, and the appearance of the eyes. The contour, texture, and alignment of the eyelids are closely related to the beauty and function of the eyes. Injuries to the eyelids and periorbital tissue are common and are often caused by penetrating or blunt trauma, frequently during road accidents or domestic incidents (Modi & Suthar, 2021). The spectrum of these injuries ranges from minor lacerations to complex, challenging damage that may require reconstructive surgery to restore eyelid and lacrimal apparatus function. Upper eyelid reconstruction is generally more complex than lower eyelid reconstruction, due to its greater dynamic movement and coverage of the globe (Jennings et al., 2021).

While the bulk of surgical procedures have previously been reported to benefit from hypnosis as an adjunct (Holler et al., 2021), its use in the field of ophthalmology is uncommon. Previously, sparse studies have described the effectiveness of hypnosis for anesthesia in cataract surgery (Chen et al., 2018) and blepharoplasty (Fathi et al., 2021), intraocular pressure (IOP) reduction (Bertelmann & Strempel, 2021), and the management of functional visual disorders (FVD) (Yeo et al., 2019). Still, there is limited research on the application of hypnosis in ocular diseases. An updated investigation on this matter (hypno-ophthalmology) has been described elsewhere (Azizi, 2024). In addition, although there is limited research on the application of clinical hypnosis in critical and emergency settings, studies have demonstrated its alleviating effects for pain, anxiety, and discomfort in a variety of medical procedures, including surgeries, fractures, joint reductions, lacerations, burns, obstetrics and gynecology, and psychiatric presentations. Additionally, hypnosis has been shown to enhance overall cooperation and supportive care in both adult and pediatric patients (Booth, 2020; Brugnoli, 2014; Iserson, 2014; Moss & Willmarth, 2019; Peebles-Kleiger, 2000). However, to the best of the author's knowledge, the use of hypnosis has not been reported in ophthalmology emergency wards.

In this case report, the author presents an upper eyelid repair performed with the assistance of hypnosis (as the sole anesthetic and sedative factor), resulting in a painless procedure without any complications. Furthermore, the author suggests and sheds light on other potential applications of hypnosis in the ophthalmology subspecialties.

Case Report

A 30-year-old Persian male presented at the emergency ward of Kashani Hospital in Isfahan, Iran, at 3:30 a.m. The patient's chief complaint was an eyelid injury to the left upper eyelid resulting from a motorbike accident. Upon examination, his vital signs were stable (blood pressure: 130/85 mmHg, respiratory rate: 18, SpO2: 93%). The traumatized eye exhibited normal visual acuity of 20/20 with no signs of hemorrhage or edema. The laceration was confined to a length of 2.5 cm and a width of 0.4 cm, without involvement of the eyelid margin or nasolacrimal system. No active bleeding was observed. The patient displayed normal eye movements and IOP. There was no significant psychological, medical, or drug history reported by the patient, except for a history of allergic reaction to lidocaine during previous dental procedures. His visual analogue scale (VAS) for pain and anxiety levels were 30 mm and 50 mm, respectively, which demonstrated mild pain and moderate anxiety (Bensusan et al., 2016; Heller et al., 2016). The VAS has been demonstrated to be a reliable and valid scale for pain and anxiety measurements in clinical practice (Begum & Hossain, 2019; Labaste et al., 2019).

Due to the patient's cosmetic concerns and anxiety (as he was moderately agitated and concerned that the laceration repair might cause any scarring), and his total refusal and fear of any local anesthesia or sedation (due to his reported allergic reactions to lidocaine and potential paradoxical responses to this medication class), the author (A.A.) suggested suturing assisted by hypnosis. The patient stated no prior experience with meditation, hypnosis, or mindfulness techniques. Therefore, the patient was fully informed about the hypnosis method, and informed consent was obtained. Subsequently, a hypnosis susceptibility test was

administered to the patient based on Spiegel's (1974) Hypnotic Induction Profile (HIP) (Spiegel, 2010) in the pre-induction phase. The resulting HIP scores were Up-Gaze 4, Roll 3, and Squint 3, which collectively indicate a high hypnotizability. The HIP has been demonstrated to be a reliable and valid assessment tool for use in clinical practice (Alexander et al., 2021). Subsequently, personal interests of the patient, such as favorite color, nature, odor, and dominant hand, were inquired about for utilization in his hypnosis experience using Erickson's principles of individualization and utilization (Hammond, 1990a). As to the minor injury of the patient's eyelid and his stable vital signs, routine anesthetic monitoring (including heart monitoring, pulse oximetry, and non-invasive blood pressure measurement) was administered to be on standby. Moreover, an intravenous line (Heplock) was preserved, considering any potential complications (e.g. vagal response secondary to the oculomotor stimulation) that might occur. Also, local analgesics and sedative anesthetics (in compliance with his medical records) were on standby in the event of the patient's complaint of pain. The patient was positioned in a supine position, and the hypnosis session was initiated by A.A. The induction method involved the utilization of "Eye-fixation" (Cardeña et al., 2017) and "Imaginary technique" (Terhune & Oakley, 2020). The patient was asked to fixate his gaze on a specific point above and concentrate on breathing while imagining himself in his favorite nature arena. Once the induction was successfully achieved, the patient's hypnotic state was deepened using the "Naturalistic technique"(Erickson, 2009) and "Motor ratification" (Hammond, 1990b). To augment the depth of the hypnotic state, the technique of fractionation was performed (Casiglia et al., 2012). Next, hypnotic suggestions were administered to induce sedation and numbness in the left upper eyelid. The patient was directed to experience a sensation of coldness and numbness in the superior areas of the left eye (Fig. 1A). During this phase, the patient's eyelid was prepared with Povidone-iodine and covered with a sterilized perforated surgical drape. Subsequently, the laceration on the eyelid was repaired using 6-0 nylon subcuticular continuous sutures (Fig. 1B). The entire hypnosis experience lasted for 15 minutes, and the hypnosis session was terminated using the "Backward counts" technique (Stevens et al., 2004), accompanied by suggestions of joy and freshness. Following the procedure, the patient reported experiencing "time amnesia" (perceiving the entire session as if it had lasted only 5 minutes), and "no stitching pain", which are indicative criteria of a deep hypnotic state and strong hypnotizability (Häuser et al., 2016). Additionally, the patient expressed a sense of absolute freshness and vitality. The patient's vital signs were normal and stable (blood pressure: 120/70 mmHg, respiratory rate: 15, SpO2: 93%). His VAS scores for pain and anxiety were 10 mm and 0 mm, respectively, indicating no pain and a calm status (Bensusan et al., 2016; Heller et al., 2016). The abridged version of the exact scripts and suggestions used in the hypnosis session are demonstrated in Table 1.

Table 1

Abridged Exact Statements in Each Stage of the Performed Hypnosis Session

Hypnosis Stage	Briefed scripts
1) Induction	"Look at the highest point that you can, now choose one special point and fixate your eyes. Slowly, your eyes might become tired and heavy. Whenever you want, you can close your eyes and enter a peaceful hypnosis experience. Yes, you are doing very well." *** "While focusing on your breath, you can imagine yourself in a peaceful, calm, and quiet garden. With each step, you can feel yourself becoming calmer and more relaxed. By sensing the marvelous breeze, you can let go of your concerns, and by identifying the scent of flowers and blossoms, you can let a rush of joy and relaxation reach you. And you are enjoying your peaceful experience, that's right, that's very good. "
2) Deepening	"As you focus on the trees moving, the leaves waving, and the clouds marching at their natural pace, you find yourself breathing naturally and calmly, in a deep, peaceful pattern. Each breath takes you to a deeper and deeper state, and your mind becomes calmer and calmer. Deeper and deeper, calmer and calmer." *** "With each step you take into your wonderful journey in this beautiful scene, your feet become lighter and lighter, calmer and calmer. Whenever you feel this lightness, signal me with your index finger, the one that I am touching now. Very good. Now, this calmness radiates to your other body parts, and makes each of them relax and calm (And the index finger was used for each body part)." *** "Now, whenever I count from 5 to 1, you will open your eyes on count 5, remaining in a calm and marvelously restful state, and close them on count 1. Each time you close your eyes, your hypnosis experience becomes deeper and deeper. Now, 5, open your eyes, 4, breathe, 3, 2, and, 1, close your eyes (Repeat this sequence 10 consecutive times)."
3) Suggestions	"As you breathe deeply, I would like you to focus your calmness on your eyelid, the one that I am touching now (your left upper eyelid). You feel the calmness spreading all over your eye, and as you continue to breathe, it becomes less and less sensitive. I don't know when, but as I'm gently touching your eyelid, it becomes more and more numb. Even if I pinch it now, you won't feel it. As I touch your eyelid, you feel the coldness and numbness more and more (and simultaneously applying the Povidone-iodine, continuing the numbness and coldness suggestions until reaching the desired numbness and preparing the patient for the sutures)."

4) Termination	"Very good, I must congratulate you for having a marvelous hypnosis experience. Whenever you want, you can feel this amazing phenomenon; you can do it just by focusing on your breath and getting calmer. Now, as I count back from 10 to 1, you will gradually sense your limbs, your body weight, and the light behind your eyes, as well as your location and the time. Whenever I reach 1, you will open your eyes with a great sense of freshness and joy. You will feel absolutely great with your left eyelid for now and for the following days (with each count down, simultaneously drawing the patient's attention to a part and its current state, and eventually, the natural state of consciousness)."

Figure 1

Application of clinical hypnosis for eyelid repair. The image demonstrates the third stage of the hypnosis procedure ("Suggestions"), where the patient receives suggestions for numbness (A), followed by the eyelid repair procedure (B).

Discussion and Conclusion

In this report, the author describes a patient who experienced a traumatic eyelid laceration and refused the use of conventional analgesics for pain management. To address this concern, the author employed hypnosis as the sole analgesic tool, providing the patient with a "no-pain" experience. To the best of the author's knowledge, this report presents, for the first time, an applicable method for an ophthalmic minor reconstructive surgery (eyelid repair) in an emergency room environment, where concerns existed regarding the sedative or analgesic drug allergy.

Non-pharmacological interventions, including hypnosis, are appreciated in the field of surgery as they could drastically diminish the emotional disturbance, mental distress, and side effects of surgical procedures (Wobst, 2007). In ophthalmology, similar observations have been recorded regarding pain management while performing the hypnosis-assisted cataract surgeries (Chen et al., 2018; Kiss & Butler, 2011). The presented case report accords with these findings, as the patient reported a comforted state with no pain during the procedure.

Due to the growing interest in "conscious sedation" in anesthesia, a combination of hypnosis techniques and pharmacological analgesia and sedation has been suggested (Wobst, 2007). The question is whether hypnosis could be an alternative to local or general anesthesia. While there are absolute indications for general anesthesia, there could be possible complications including mechanical ventilation malfunction, delirium, and cognitive dysfunction, in addition to unpredictable side effects. On the other hand, local anesthesia could cause adverse complications including infection, edema, pain, bruising, allergic reactions, and toxicity (Fathi et al., 2021). Hypnosis has not demonstrated these drawbacks. Hypnosis has been suggested to have the potential to be used as an ancillary technique in the pre- and postoperative stages of general anesthesia, to be used alone in minor surgeries and invasive procedures, and as an adjuvant or alternative to

local anesthesia or sedation to optimize patient comfort (Facco, 2016; Facco, Bacci, & Zanette, 2021).

In the literature review for this report, the author came across two similar works that described the use of hypnosis as an adjunct to anesthesia in cosmetic blepharoplasty procedures. In the first study, a registered nurse first assistant (RNFA) who was also a hypnotherapist had concerns about the possible complications of anesthesia. This patient underwent bilateral upper and lower blepharoplasty with the assistance of hypnosis as an adjunct to the use of minimal local anesthesia (Haskins, 2001). In the second report, a 54-year-old woman who had a fear of anesthesia and drug-related side effects underwent bilateral upper eyelid blepharoplasty with the application of hypnosis as the sole anesthetic component (Fathi et al., 2021). These case reports have included close monitoring during the procedures, such as heart monitoring (H.M), pulse oximetry (P.O), non-invasive blood pressure (B.P) detection, and bispectral index (BIS) monitoring. Both procedures had successful outcomes with no complications during or after the procedures. Both patients had a comfortable experience with no sensation of pain and did not require any postoperative analgesic medication. However, none of these studies reported clear, measurable scores for pain and anxiety outcomes, and instead relied solely on the patients' verbal reports. Objective measurement tools, such as the Visual Analogue Scale (VAS), McGill Pain Questionnaire, and Wong-Baker FACES Pain Rating Scale, should have been utilized to better verify the results and the overall generalizability of the applications stated (Brugnoli, 2014). This was considered in a recent study on the application of hypnosis as the sole anesthesia for oral surgery (Facco, Bacci, & Zanette, 2021). The findings from the present report are consistent with and corroborate these reports, given the similarities between the blepharoplasty procedure (Zoumalan & Roostaeian, 2016) and eyelid repair, hypnosis application, and the observed patient outcomes.

As this report primarily focused on eyelid repair, it is worth comparing the findings to other reports on skin surgeries that have utilized hypnosis as a tool to enhance analgesia and patient comfort. A recent review suggested the application of hypnosis for reducing anxiety during dermatologic surgeries, including excisions, biopsies, and other minor procedures, leading to overall improved outcomes (Yousif et al., 2023). This is consistent with a case report depicting significant anxiety reduction through hypnotic induction in a patient undergoing suspicious nevus excision (Shenefelt, 2003), as well as a randomized control trial of patients undergoing removal of benign or malignant skin lesions (Shenefelt, 2013). Furthermore, hypnosis has been shown to help children tolerate the anxiety and pain experienced during procedures such as wound management and debridement, suturing, blood sampling and injections, intravenous catheterizations, and lumbar punctures in the pediatric emergency settings (Peebles-Kleiger, 2000). Notably, hypnosis has been used as an adjunct to conscious intravenous sedation in plastic surgery, with a stronger effect on alleviating pain and anxiety, and enhancing patient satisfaction, compared to conventional intravenous sedation. This approach also significantly reduced the demand for pharmacological sedatives (Faymonville et al., 1997; Faymonville et al., 1995).

The jury is still out as to whether hypnotic susceptibility has a direct influence on the depth and overall outcomes of a hypnosis intervention (Facco, Bacci, & Zanette, 2021). What is clear is that hypnotizability enhances the successful application of hypnosis in therapeutic attempts. In the context of emergency and critical care settings, it is important to have a feasible scale that can quickly determine whether hypnosis is likely to be useful for a given patient. Although the Stanford Hypnotic Susceptibility Scale has been widely applied for hypnotizability assessment in research projects, it is not well-suited for immediate surgical settings, as it takes approximately one hour to administer. Accordingly, the application of the Hypnotic Induction Profile test (presented by Herbert Spiegel in the 1960s) is more reasonable, as it takes only a few minutes to perform. This could facilitate the wider use of hypnosis in clinical interventions and further research on the topic of hypnotic susceptibility (Facco, 2016).

Considering the use of hypnosis as the sole anesthetic factor, it is valuable to examine potential ethical concerns and an individual's decision-making process. Like any psychological intervention, one might consider that hypnosis may pose risks of harming free will or causing other undesirable effects. However, clinical studies have shown hypnosis to have a 0% rate of serious adverse effects and a 0.47% rate of other adverse effects,

when administered by experienced practitioners in standardized settings. While there is an unbalanced interpretation of hypnosis' use in surgery due to the disproportionate reporting of positive versus adverse outcomes (Holler et al., 2021), patients are known to maintain critical capacity, control, and free will during hypnosis sessions. The psychological factors that might affect hypnotizability are still unclear. However, as long as the patient exhibits motivation, imagination, healthy cognition, sensation, and emotion, and there is a presence of trust, rapport, expertise, and empathy in the therapy session, the decision to benefit from hypnosis could be made. Importantly, the ethical considerations for using hypnosis as the sole anesthesia must include a written informed consent acknowledging possible intraoperative changes (in the exclusive interest of the patient) and the availability of conventional anesthetic drugs in case of complications (Facco, Bacci, Casiglia, et al., 2021). In the case presented, the patient had no apparent psychological disturbances interfering with his decision-making, and his previous experience with allergic reactions to local anesthetics had motivated him. All of the mentioned ethical considerations were taken into account in the patient's judgment and consent process.

It is worth noting that in recent decades, there have been few major updates in the management of anesthesia for eye surgery, despite the vast advancements in ophthalmic surgical techniques (Palte & Masters, 2023). Accordingly, patients may appreciate the availability of alternatives to solely technological or pharmacological solutions to address their pain, discomfort, and distress. In such cases, psychological or behavioral interventions can be practical (Brugnoli, 2014). As the famous aphorism of Hippocrates states, "It is more important to know what sort of person has a disease than to know what sort of disease a person has" (Facco & Tagliagambe, 2020). Research has shown that treatment approaches targeting the whole person and their holistic well-being can improve the individual's healing experience (Bahreini et al., 2024; Farzanegan et al., 2022).

At this point, the author suggests future horizons for the application of hypnosis in ophthalmology (hypno-ophthalmology) for the potential readership. It is suggested that hypnosis could serve as an alternative sedation technique for refractive surgeries, blepharoplasty, and potentially other ophthalmic procedures. Additionally, hypnosis may be beneficial in addressing psychosomatic-related visual dysfunctions and improving medication adherence in post-surgical or graft patients in ophthalmology. The author has conducted a thorough review on this topic, which establishes a foundation for the current state of research, its merits, controversies, and potential future directions.

This case report faces some limitations. First, this report lacks routine intraoperative anesthetic monitoring. This could have provided more robust data on the patient's physiological response during the procedure. In accordance with conventional approaches in the emergency ward, as the patient's eyelid repair was determined to be a minor procedure and his vital signs were stable, routine monitoring was administered to be on standby during the procedure. However, it is recommended for future research in similar scenarios to consider applying intraoperative monitoring and expand this knowledge. Of note, it has been demonstrated that hypnosis is safe, fast, and cost-effective to apply; however, it is rarely used in emergency medicine. This may imply a need for more education and training for emergency clinicians (Iserson, 2014). Second, due to the nature of the presented case, which was conducted in an emergency ward, it was not possible to have pre-operative visits (due to the admission of the patient for the first time) or follow-up assessments (due to the loss of contact with the patient). Pre-operative visits could have helped the hypnotherapist and the patient establish a good rapport, measure the patient's hypnotic susceptibility, measure the analgesic ability, determine the best method, provide training, and enhance the patient's education and assurance. Also, follow-ups and post-operative booster sessions could strengthen the validity and effectiveness of the outcomes (Facco, 2016). Third, although this patient experienced a remarkable decrease in his VAS scores for pain and anxiety and demonstrated a positive response to hypnotic anesthesia in place of local anesthesia, the transferability of the findings is limited as it is based on a single patient case. This patient might have had an overall high pain threshold, or a generally calm state, or even though he was highly hypnotizable, he may have only experienced a moderate state of hypnosis. It would be still naïve to claim overall generalizability, as potential biases could arise due to heterogeneity in patient characteristics,

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hypnotizability, hypnotic techniques, placebo effects, and variations in prior study interventions or methods (Facco, 2016; Holler et al., 2021).

The strength of this study was its uniqueness in establishing an immediate and unconventional state-of-the-art approach for a traumatized patient. As noted, "hypnosis can also be performed without any preoperative preparation and even in emergency situations, granted that a trained anesthetist is able to establish a positive rapport and effectively guide the patient. This may be very effective in critical (sometimes pharmacologically unmanageable) situations" (Facco, 2016). To the author's best knowledge, and based on the available scientific literature, this is the first reported case of eyelid repair in a traumatic patient (who had no prior experience with hypnosis) that was performed solely using hypnotic anesthesia.

The author proposes hypnosis as a means to diminish pain and induce relaxation in a minor ophthalmic surgical procedure (eyelid repair), which was performed in an emergency department setting without any complications. It is suggested that hypnosis appears to be a safe and effective alternative to local anesthesia in such particular circumstances. Furthermore, as a next steps, it is recommended to explore and initiate a randomized controlled trial (RCT) on the utilization of hypnosis as an alternative or adjunct sedation technique for refractive surgeries. Additionally, targeted clinical trials on hypno-ophthalmology dedicated to emergency ophthalmic procedures might cultivate a detailed guideline for this matter.

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None.

Declaration of Interest

The authors of this article declared no conflict of interest.

Ethical Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants.

Transparency of Data

Data sharing is not applicable to this article as no new data were created or analyzed in this study. The information related to the particular case of this study is available from the corresponding author, upon reasonable request.

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Authors' Contributions

All authors equally contributed to this study. The author attests that he meets the current ICMJE criteria for Authorship.

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