



Editorial

Impact of Surgeon's Instagram Television (IGTV): A Case of Chimeric Fibula and Soleus Muscle Transplant in a Reconstruction of Cordeiro Type IIIA Total Maxillectomy Defect

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It's time for videos to move forward and evolve.

—Kevin Systrom

Co-founded Instagram and launched IGTV

IGTV, a new option provided by Instagram Inc., was launched in June 20, 2018, i.e. 7 years 8 months after starting parent application—social media.¹ IGTV is both a standalone application and available within an Instagram but only in basic functionality. Four letters of the acronym “IGTV” mean “Instagram Television.”² Lydia Belanger also described IGTV as a “social-media based television” and “Instagram's new longform video app.”³

Meanwhile, multiple advantageous role of the chimeric flaps in a jaw reconstructive surgeries continues to increase during last three decades.⁴⁻⁶ Fibula free flap,⁷ being alone an extremely productive workhorse in all types of jaw reconstructions⁸

including “jaw-in-a-day surgery,”⁹ can also be successfully used with soleus muscle in a chimeric manner for composite defect reconstructions.^{10,11}

Combination of the social media's (in our particular case it is Instagram) advantages with IGTV (i.e., a longform video application), and a professional quality recording system¹² can perfectly highlight the operation and bring the surgical tips and tricks from operating room to the internet environment with more than 1 billion users.¹³ The purpose of our editorial is to describe an educational IGTV microvascular surgery video case from both technological and surgical aspect.

IGTV CHIMERIC FLAP CASE

The IGTV video of the maxilla-reconstruction case with a title “Face reconstruction with a chimeric

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fibula and soleus transplant” was published by Dr. Hanna on December 18, 2019. It depicts an intraoperative look on 10 consecutive stages (named by the surgeon [T.C.H.] as “Chapters” to emphasize the educational purposes of this IGTV flap case) of the microvascular operation (it lasted 12 hours 9 minutes). A surgery was performed in operating room of a Private Surgical Practice in New York City, New York, United States. Duration of this IGTV video, illustrating a free fibula osteocutaneous flap with soleus muscle as a chimeric flap, reached 4 minutes 42 seconds, and it became a sixth video in an IGTV account of Dr. Hanna (@doctor.hanna).

The 10 steps of the surgery which were presented in the IGTV case are next ones:

1. “Chapter 1: The harvest” (Fig 1).
2. “Chapter 2: The soleus chimera” (Fig 2).
3. “Chapter 3: The osteotomies” (Fig 3).
4. “Chapter 4: Orbital mesh. The conformation” (Fig 4).
5. “Chapter 5: Model inset. The template” (Fig 5).
6. “Chapter 6: Facial inset. The transference” (Fig 6).
7. “Chapter 7: Vessel preparation. Bring in the scope” (Fig 7).
8. “Chapter 8: The microvascular anastomosis. Slow is smooth, smooth is fast” (Fig 8).
9. “Chapter 9: The soft tissue inset. Nasal and oral lining” (Fig 9).
10. “Chapter 10: The closure” (Fig 10).

The aim of this chimeric flap case was to reconstruct Cordeiro type IIIA total left maxillectomy defect (after squamous cell carcinoma removal) including the floor of the orbit but sparing the orbital contents.¹⁴ Type IIIA defect reconstruction included usage of titanium orbital mesh, one L shape, and three X shape mini plates. Virtual surgical planning provided precise position of the osseous components of the chimeric transplant what was noted on post-operative three-dimensional computed tomography (Fig 11). Dental implantation (one zygomatic implant and one anterior implant with bicortical placement) was planned to be performed secondary.

IGTV STATISTICS OF THE CASE

Analysis of the number of views, comments, and

followers after publication the IGTV video case dedicated to microvascular surgery in a surgeon’s Instagram account during first 3 weeks is presented in Table 1. From our standpoint the impact of IGTV surgical video can be measured by:

1. Number of views.
2. Number of comments.
3. Number of new connections between surgeons.
4. Number of new collaborations related with published topic between specialists who are involved into 1) surgical education/training (finished fellowship programs on the base of the opinion leader’s [IGTV account holder] medical institution) or 2) surgeries alone.

DISCUSSION

According to Buntic and Bunke the *chimeric flap* is a flap which is composed of more than one flap each on its own pedicle but with both on a common source pedicle.¹⁵ Despite the myriad of combinations¹⁵ of the chimeric flaps which can be created there are some most popular examples¹⁶ in the reconstruction of composite head and neck defects⁶.

Ettyreddy et al¹⁶ analyzed 521 chimeric flaps in the reconstruction of head and neck defects. The leading flap became a chimeric anterolateral thigh flap (N = 213 flaps, i.e. 40.88 percent of flaps), second most popular was subscapular flap (N = 141, i.e. 27.06 percent of flaps), in 16.21 percent of flap cases were chimeric fibulas, 13.24% reached the number of chimeric anterior tibial flap with dorsalis pedis skin paddle.¹⁶ According to their study less than 1% scored such chimeric flaps as rectus abdominis free flap, chimeric groin flap with multiple skin paddles, and a chimeric radial forearm free flap.¹⁶

Upon maxillary reconstruction after oncological surgical defect appears a need to use free flaps with osseous components. And some variations of chimeric fibula perfectly match those requirements:

1. Gullwing fibula osteofascial flap and flexor hallucis longus muscle¹⁷ successfully face the challenges of the Cordeiro type II maxillary defects.
2. The composite fibula and soleus free transfer for Cordeiro type III total maxillectomy defects.^{18,19}



FIGURE 1. Screenshot during the 1st Chapter of the IGTV chimeric transplant case which is dedicated to harvesting of the soleus part of the transplant. Printed with permission and copyrights retained by T.C.H.

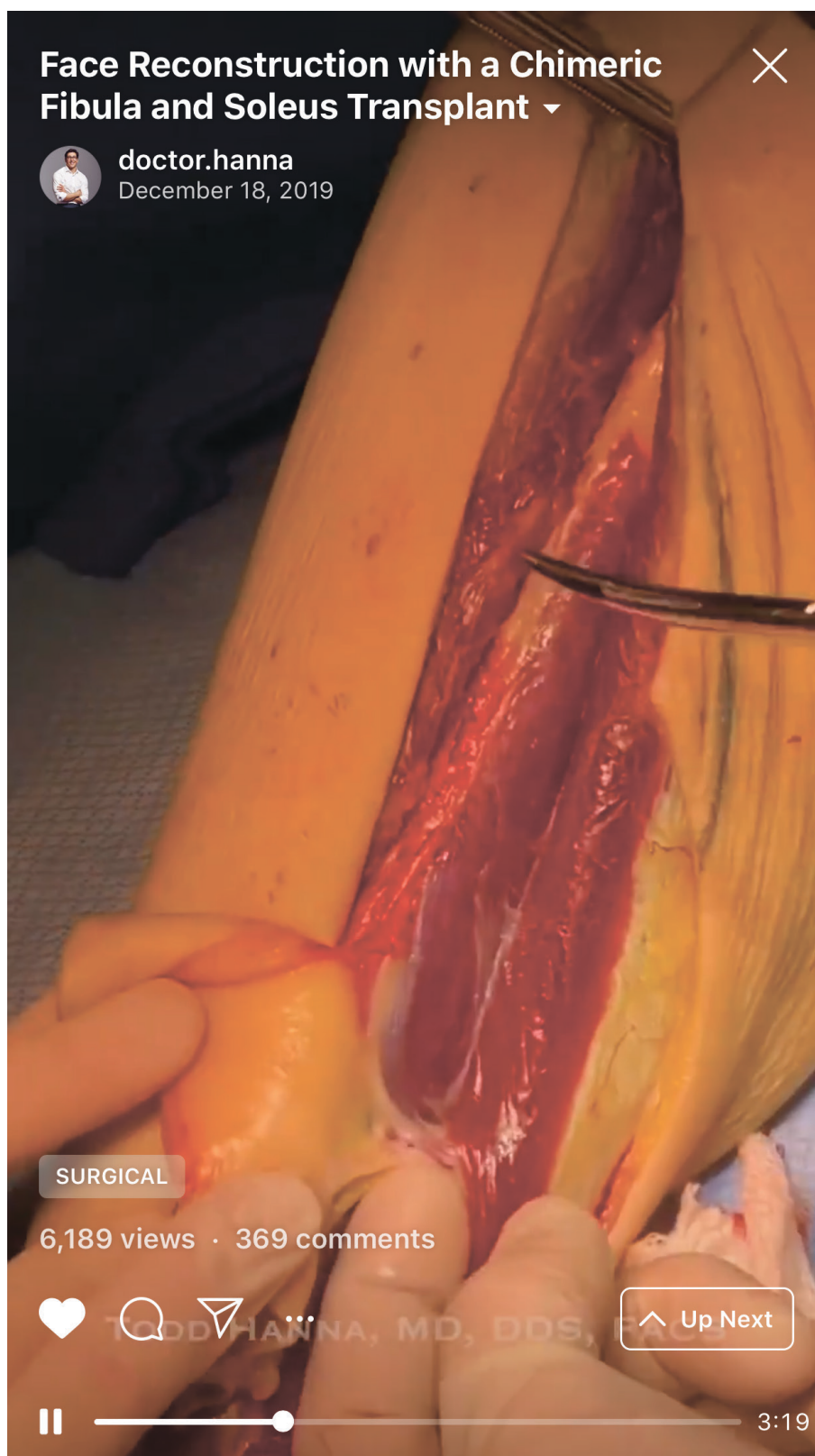


FIGURE 2. Screenshot during the 2nd Chapter of the IGTV chimeric transplant case which is dedicated to harvesting of the soleus part of the transplant. Printed with permission and copyrights retained by T.C.H.

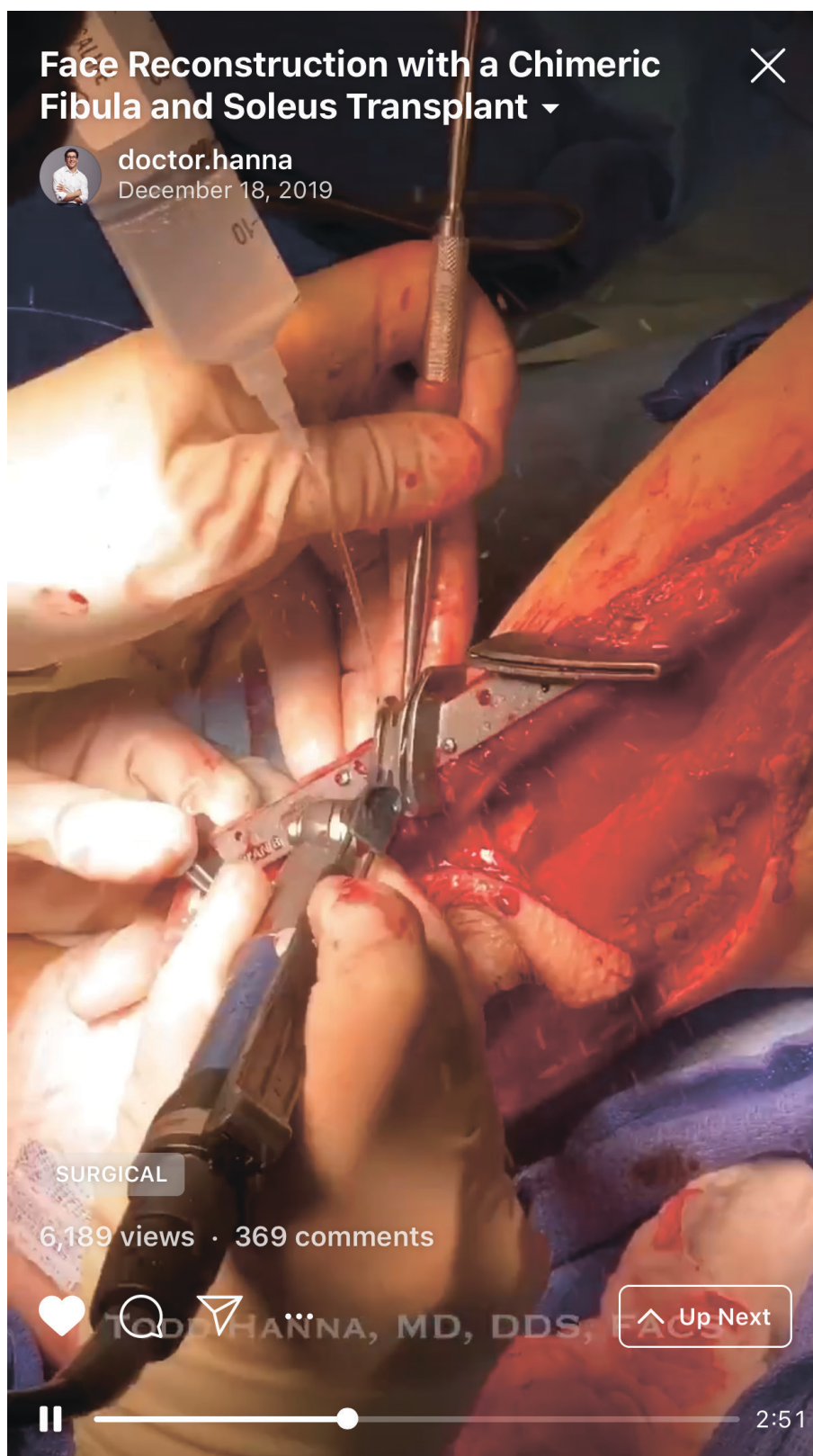


FIGURE 3. Screenshot during the 3rd Chapter of the IGTV chimeric transplant case which is dedicated to segmentation of the fibula. Printed with permission and copyrights retained by T.C.H.

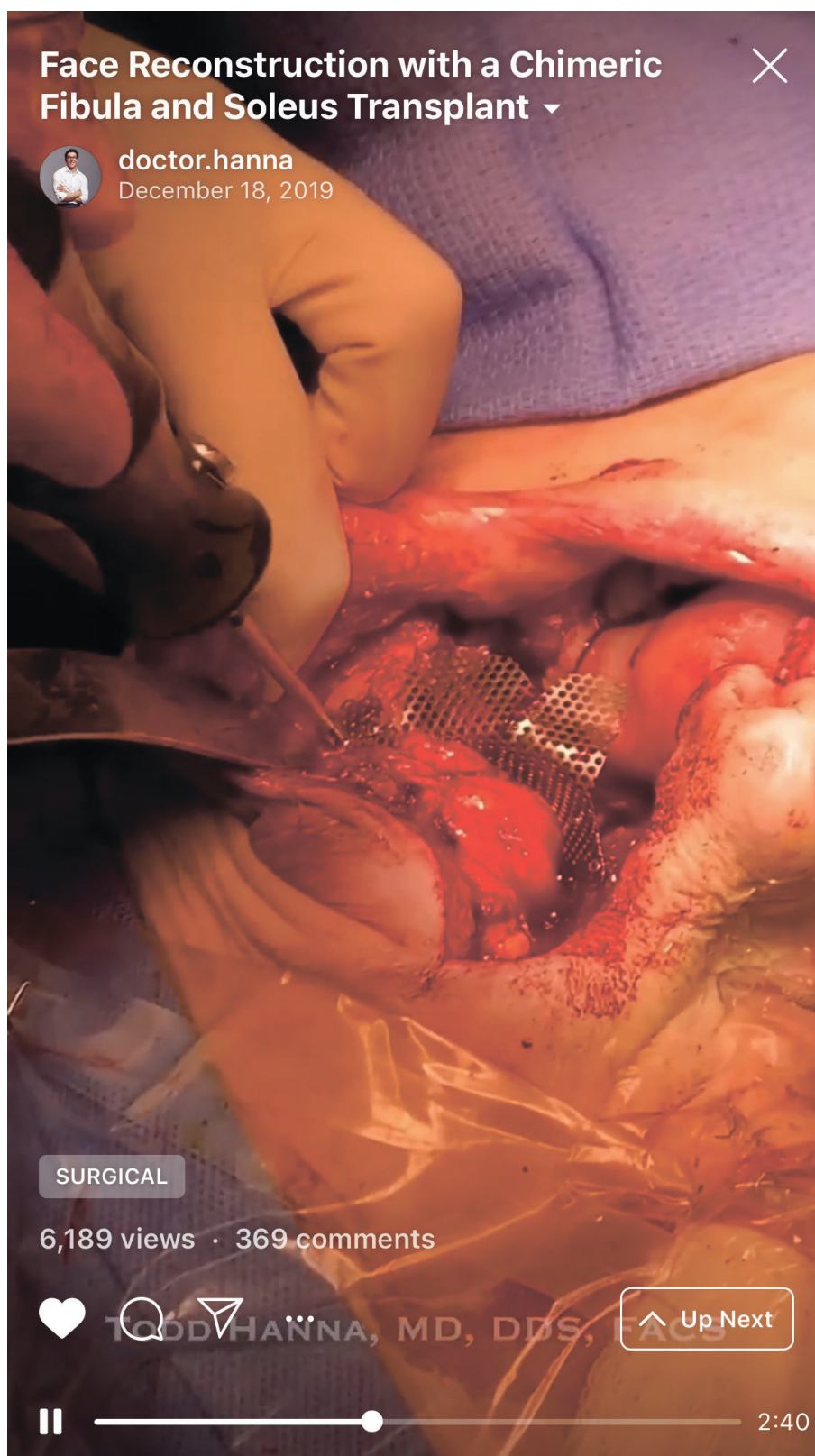


FIGURE 4. Screenshot during the 4th Chapter of the IGTV chimeric transplant case which is dedicated to orbital mesh conformation. Printed with permission and copyrights retained by T.C.H.

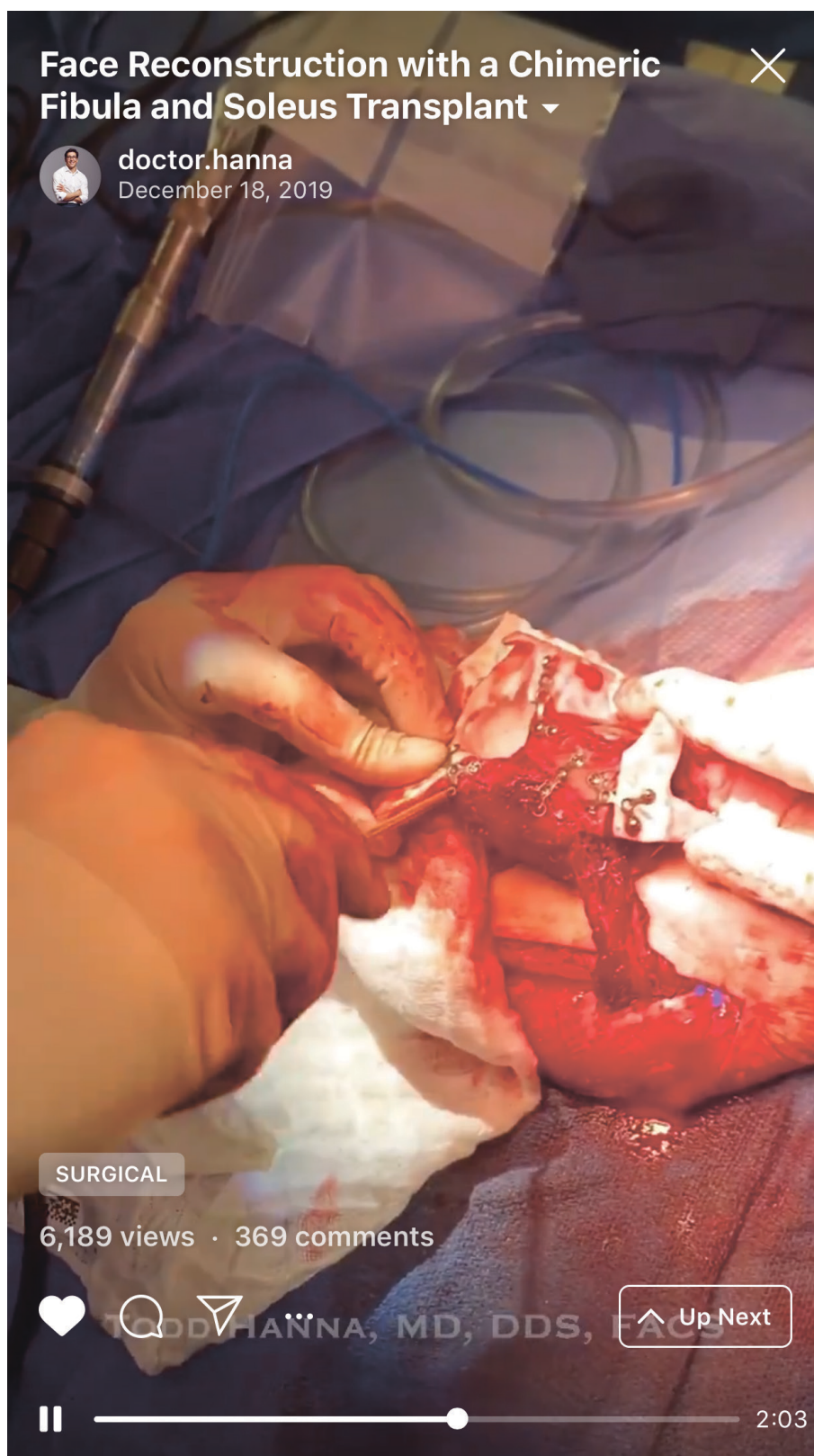


FIGURE 5. Screenshot during the 5th Chapter of the IGTV chimeric transplant case which is dedicated to model inset and template. Printed with permission and copyrights retained by T.C.H.

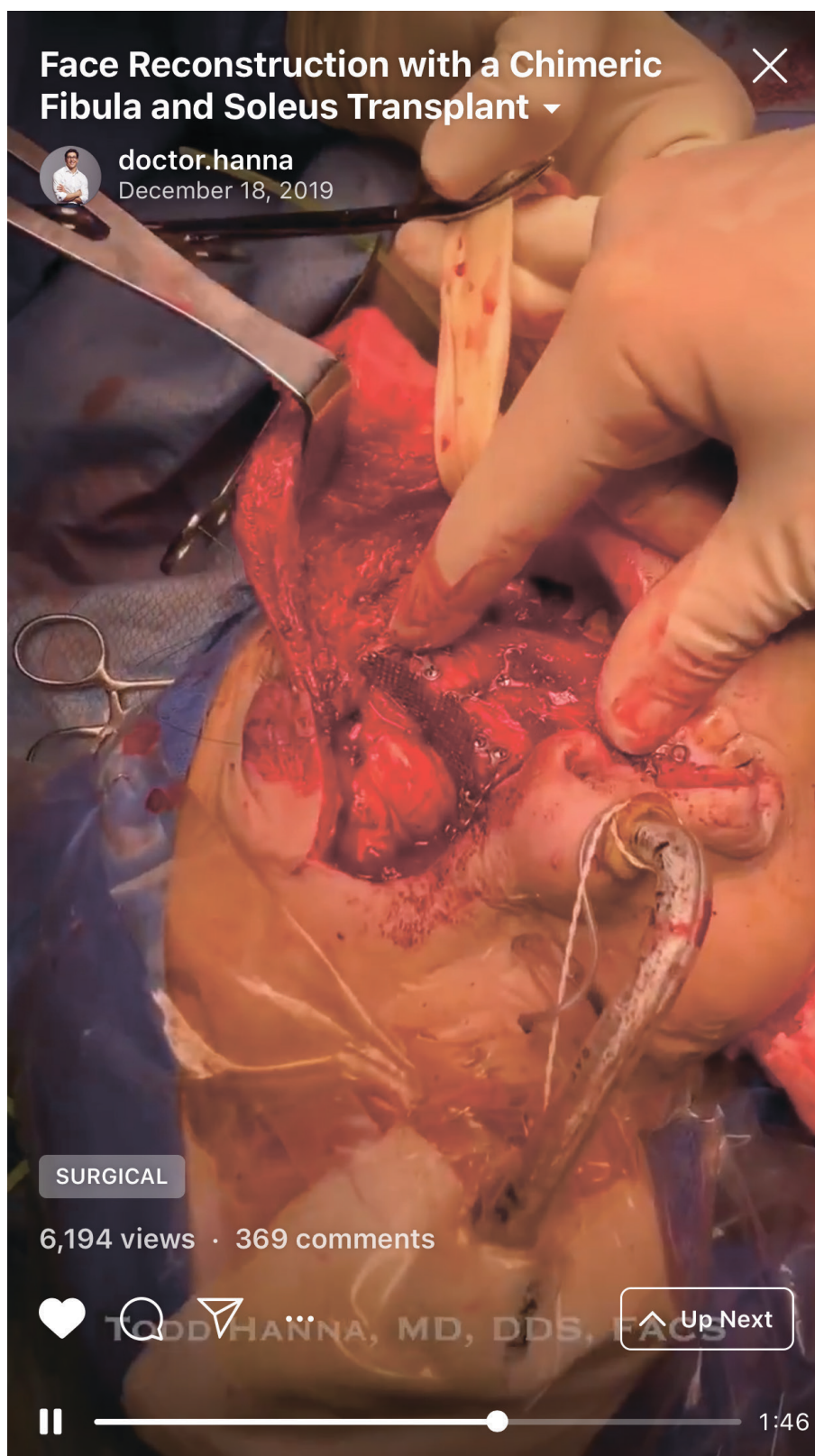


FIGURE 6. Screenshot during the 6th Chapter of the IGTV chimeric transplant case which is dedicated to facial inset and transference. Printed with permission and copyrights retained by T.C.H.



FIGURE 7. Screenshot during the 7th Chapter of the IGTV chimeric transplant case which is dedicated to vessel preparation and bringing in the scope. Printed with permission and copyrights retained by T.C.H.



FIGURE 8. Screenshot during the 8th Chapter of the IGTV chimeric transplant case which is dedicated to microvascular anastomosis. Printed with permission and copyrights retained by T.C.H.



FIGURE 9. Screenshot during the 9th Chapter of the IGTV chimeric transplant case which is dedicated to soft tissue inset, nasal, and oral lining. Printed with permission and copyrights retained by T.C.H.



FIGURE 10. Screenshot during the 10th Chapter of the IGTV chimeric transplant case which is dedicated to closure of the facial approach. Printed with permission and copyrights retained by T.C.H.

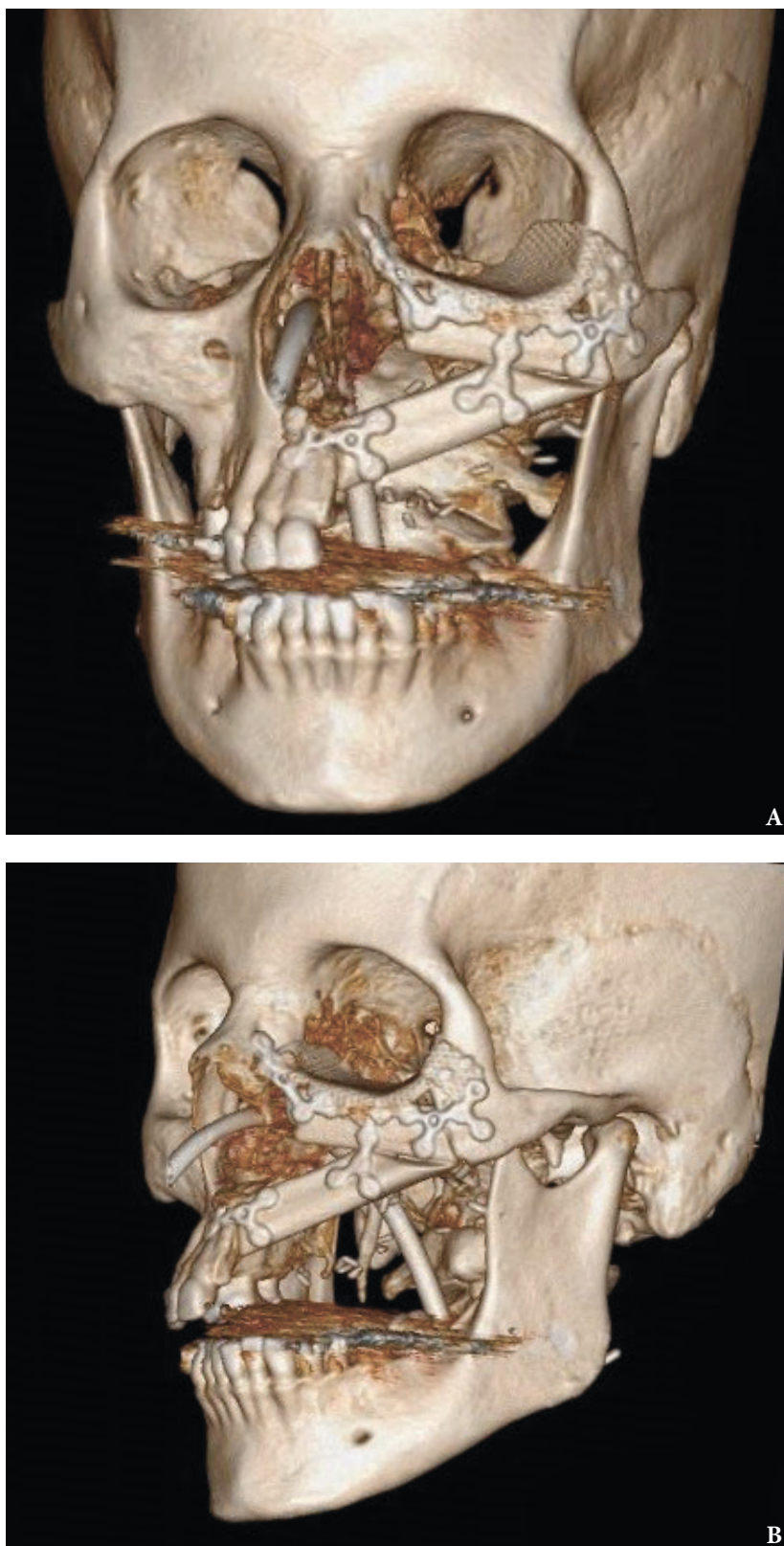


FIGURE 11. Post-operative three-dimensional computed tomography (**A, B**). Notes precise position of the osseous components of the chimeric transplant after reconstruction of Cordeiro type IIIA total left maxillectomy defect using virtual surgical planning. Printed with permission and copyrights retained by T.C.H.

TABLE 1. Comparison of the Number of Views, Comments, and Followers After Publication of the IGTV Video Case Dedicated to Microvascular Surgery in a Surgeon`s Instagram Account During First 3 Weeks.

Hours/Days From Moment of Post Publication	Number of Views	Number of Comments	Number of Followers
20 hours	4,328	285	22.8K
1 day	4,739	318	The number was not fixed
6 days	5,482	357	The number was not fixed
10 days	5,984	369	22.9K
21 days	6,189	369	22.9K

3. Chimeric lateral supramalleolar artery perforator fibula free flap^{6,20,21} for 1) Cordeiro type IIB, as sandwich flap despite of radial osteocutaneous sandwich flap, and 2) type IV when you want to achieve a prosthetic correction of postenucleation socket syndrome (*synonym*: post-enucleation/evisceration socket syndrome)^{22,23} and you don`t want to fill the orbital cavity.

Nokovitch et al¹⁹ emphasized that first description of the fibula flap including the lateral head of the soleus muscle was presented by Baudet et al¹⁸ in 1982. Nokovitch with colleagues clearly described that composite fibula and soleus free transfer serve for better functional and aesthetic outcomes.¹⁹ As it not only restores osseous defect but also obliterates the dead space.¹⁹ Results of Ettinger et al²⁴ proved that chimeric osteomusculocutaneous fibular flap with soleus muscle and skin paddle components can be successfully implemented also in cases of complex ablative defects resulting from advanced-staged the floor of mouth squamous cell carcinomas.

DENTAL IMPLANTS INTO CHIMERIC FLAPS

Comparing four osteocutaneous flaps (fibula, scapula, iliac crest, and radius), Lin et al²⁵ indicated that fibula and iliac crest free flaps have the best characteristics for the dental implantation.

Massarelli et al reported a second ever published results dedicated to chimeric lateral supramalleolar artery perforator fibula free flap for composite head and neck defects, and presented as well their experience of secondary dental implantation into osseous portion of chimeric flap in the reconstruction of mandibular defects.⁶ Two of 10 chimeric-flap-mandibles received 10 implants, with 5 implants for each reconstructed mandible.⁶ Ten osseointegrated implants with 43-month and 23-month follow-up showed no lost.⁶

POSSIBILITIES OF IGTV

Comparison of videos` duration in Instagram and IGTV is presented in Table 2. Despite official Instagram, Inc. page does not mention²⁶ the restrictions on posting

TABLE 2. Comparison of the Video Length Limitations in Instagram and IGTV.^{3,27}

Application	Type of Post	Duration	Possibility to Save Video	Who Can Post?
Instagram	Instagram post	3 seconds – 1 minute	Can be saved	Every user
	Instagram Stories	15 seconds per 1 Story	Can be saved in “Highlights” in a user`s profile	Every user
	Instagram Live	Up to 1 hour	Can be saved only to “Archive” and without possibility to be watched by other users	Every user
IGTV	IGTV video	15 seconds – 10 minutes	Can be saved	Every user
		Up to 1 hour	Can be saved	Some users with more followers ^{3,27}

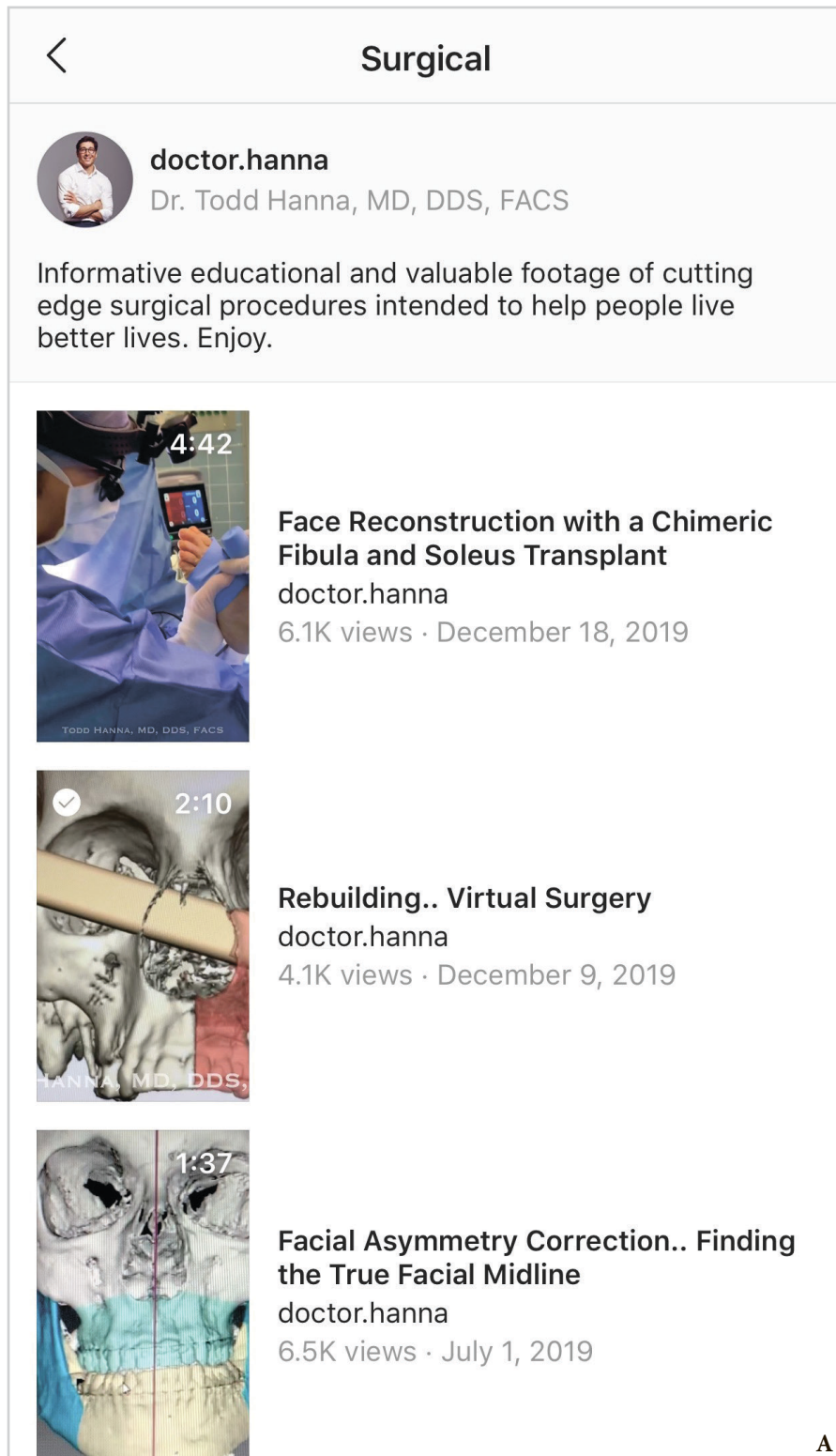


FIGURE 12. Window (A, B) which is opened on smartphone screens after clicking on the button “SURGICAL” shows:
1. Short description of the topic “Surgical.”
2. List of all video cases published by the surgeon under that topic with indicated videos` titles, duration, amount of views, and the dates of publication.
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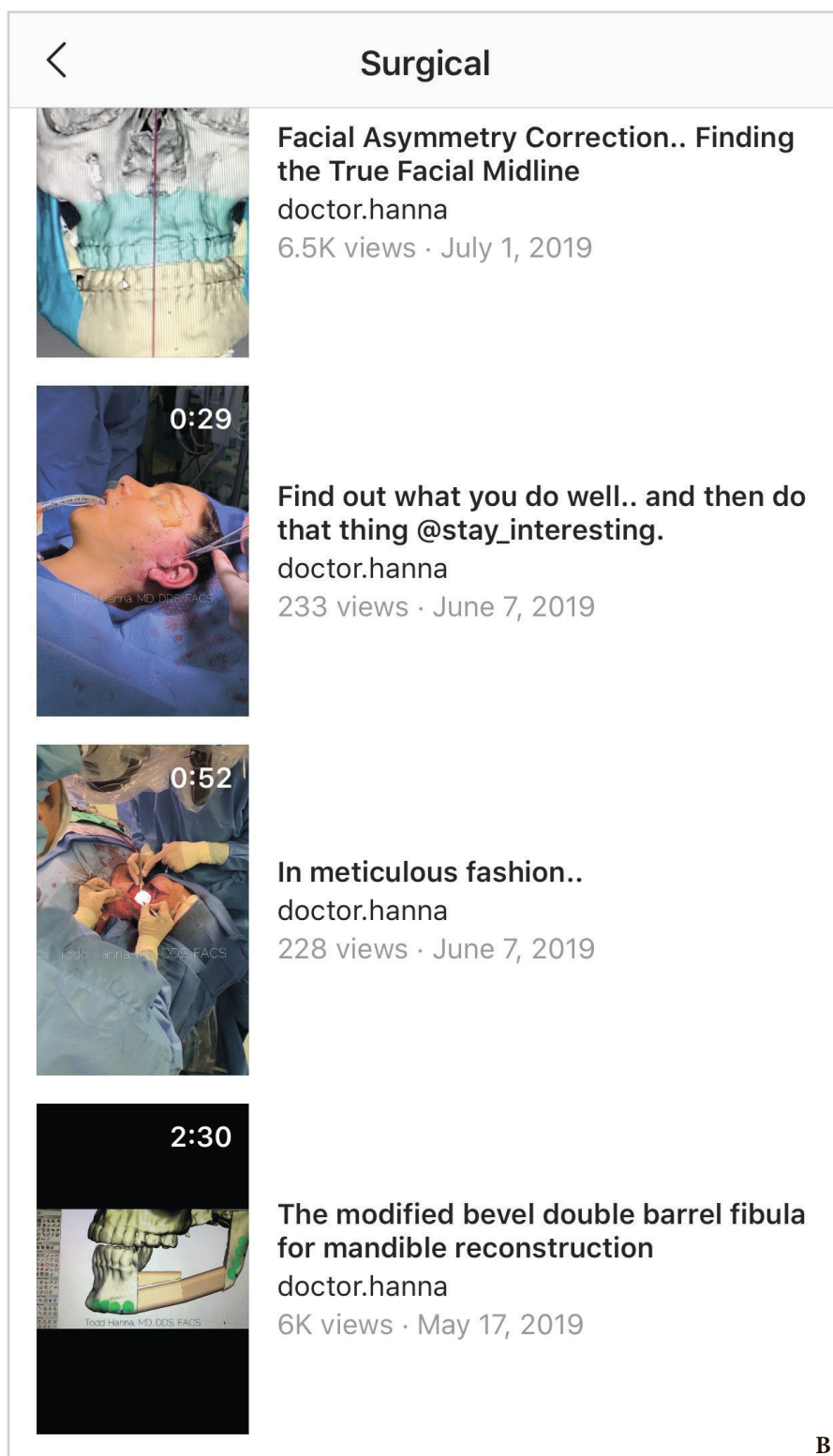


FIGURE 12 (cont'd). Window (A, B) which is opened on smartphone screens after clicking on the button “SURGICAL” shows:
 1. Short description of the topic “Surgical.”
 2. List of all video cases published by the surgeon under that topic with indicated videos` titles, duration, amount of views, and the dates of publication.
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IGTV videos with different duration for average users and users with “more followers,” a lot of sources indicates that the difference does exist (Table 2).^{3,27}

Window which is opened on smartphone screen after clicking on the button “SURGICAL,” which is visualized upon watching Dr. Hanna’s IGTV videos (Fig 12), shows: 1) short description of the topic “Surgical” and 2) list of all video cases published by the surgeon under that topic with indicated videos’ titles, duration, amount of views, and the dates of publication.

CONCLUSIONS

We remember the words mentioned in one of the editorials’ published by Dr. Rod J. Rohrich, editor-in-chief of *Plastic and Reconstructive Surgery*, “one picture can be worth 1000 words.”²⁸ And after analysis of this IGTV video chimeric flap case we can affirmatively say that one surgical video with an academic educational approach can be worth 1000 pictures.

If you focus on producing a great experience for anyone, that's how you get big.

—Kevin Systrom
Former CEO of Instagram

PATIENT CONSENT

The patient provided written consent of the use of her images.

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