

Image Is Everything: Pearls and Pitfalls of Digital Photography and PowerPoint Presentations for the Cosmetic Surgeon

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BACKGROUND. Cosmetic surgery and photography are inseparable. Clinical photographs serve as diagnostic aids, medical records, legal protection, and marketing tools. In the past, taking high-quality, standardized images and maintaining and using them for presentations were tasks of significant proportion when done correctly. Although the cosmetic literature is replete with articles on standardized photography, this has eluded many practitioners in part to the complexity. A paradigm shift has occurred in the past decade, and digital technology has revolutionized clinical photography and presentations. Digital technology has made it easier than ever to take high-quality, standardized images and to use them in a multitude of ways to enhance the practice of cosmetic surgery. PowerPoint presentations have become the standard for academic presentations, but many pitfalls exist, especially when taking a backup disc to play on an alternate computer at a lecture venue.

OBJECTIVE. Embracing digital technology has a mild to moderate learning curve but is complicated by old habits and holdovers from the days of slide photography, macro lenses, and specialized flashes. Discussion is presented to circumvent

common problems involving computer glitches with PowerPoint presentations.

CONCLUSION. In the past, high-quality clinical photography was complex and sometimes beyond the confines of a busy clinical practice. The digital revolution of the past decade has removed many of these associated barriers, and it has never been easier or more affordable to take images and use them in a multitude of ways for learning, judging surgical outcomes, teaching and lecturing, and marketing. Even though this technology has existed for years, many practitioners have failed to embrace it for various reasons or fears. By following a few simple techniques, even the most novice practitioner can be on the forefront of digital imaging technology. By observing a number of modified techniques with digital cameras, any practitioner can take high-quality, standardized clinical photographs and can make and use these images to enhance his or her practice. This article deals with common pitfalls of digital photography and PowerPoint presentations and presents multiple pearls to achieve proficiency quickly with digital photography and imaging as well as avoid malfunction of PowerPoint presentations in an academic lecture venue.

J. NIAMTU, III, DDS HAS INDICATED NO SIGNIFICANT INTEREST WITH COMMERCIAL SUPPORTERS.

CLINICAL PHOTOGRAPHY and academic presentations have undergone an exponential paradigm shift over the past 10 years.¹ For decades before, clinical slide photography and carousel slide lecture presentations were the gold standard in cosmetic surgery. The availability of mega pixel digital photography, digital imaging systems, and computer-driven digital presentations programs has revolutionized teaching and learning. It has never been easier to take, standardize, and use high-quality controlled clinical images.

Despite these changes, many practitioners have not adapted this technology or fail to observe the simple rules to ensure standardized image use. Most unfortunate is that fact that some of the best known and respected cosmetic surgeons propagate their work with substandard photographic quality. In the scope of things,

this new technology is not overly expensive and has a mild to moderate learning curve.² Lecturers continue to use poor-quality images and presentations because of a lack of attention to a small number of variables.

The author feels that any organized group, society, or association should immediately mandate its members to use digital presentations and abandon slides. Although this statement may seem radical and irritate those who have not yet embraced this technology, it will truly benefit every profession in numerous ways.

There is no doubt that most of us take the path of least resistance, and there is significant initial work involved in converting from slides to digital. Because of this excuse, many practitioners continue to give their same "canned" lectures repeatedly. This short-changes the audience, as these presentations and slides are oftentimes not contemporary. Unfortunately, it is very difficult to add new controlled images and data to old slide lectures; thus, oftentimes people do not. Digital presentations, on the other hand, can be

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updated in a matter of seconds, and this author frequently assembles his lectures on the plane trip to the meeting. I have also changed a lecture minutes before going on stage because of additions or deletions of the previous speaker. I truly feel that when doctors convert to updated technology their teaching and subsequent audience learning will be more updated and contemporary. In this case, everyone benefits.

The good news is that this conversion needs to be done only one time. The most prohibitive factor is the “fear and trepidation” of having to scan the entirety of one’s slide collection. As most seasoned lecturers maintain thousands of slides, this would be a task of awesome and fearful proportions.

Fallacy 1: You Need to Convert Your Entire Slide Collection to a Digital Format

This is the most common misconception that prevents adaptation of digital technology. Scanning thousands of slides is simply downright impractical and almost always unnecessary. First, doctors with thousands of slides rarely use them all on a regular basis. In reality, they use a small portion of their collection for routine lectures. I personally recommend that one only scan the images that he or she simply cannot recreate. This would include “hall of fame” cases, rare pathology, surgical images, unusual lesions, etc. Most anything else can be recreated. For instance, I have for years lectured on chin surgery and had multiple canned lectures on the subject. Some of these slides are once in a lifetime situations; thus, I scanned them. Instead of scanning all of the others, I simply photographed my next chin surgery with a digital camera. Now I not only had more contemporary images, but the quality was superior. I could edit them in many ways, such as improving brightness and contrast, cropping, changing hue and saturation, adding text and symbols, and placing multiple images on a single photo. This did not take long and immediately made my “chin lecture” better. I proceeded with the same strategy for other procedures and soon had abandoned the slides that I previously held dear to my heart. My decision to go “slideless” was about 7 years ago, and I have never looked back.³ I cannot tell you how much of a “purge for freedom” it was to take my previously coveted carousel of slides and dump them in the trash.

Pearl 1: Scan Only the Slides You Need and Then Move on With Digital Technology

Slide scanners can vary from several hundred dollars to over a thousand dollars. My advice is to either

purchase an inexpensive scanner and do not use it often or pay a professional laboratory to scan your slides that cannot be recreated.

Pearl 2: Tomorrow Is the First Day of the Rest of Your Life: Do Not Procrastinate

There are some basic armamentaria required to make and use digital images.⁴ Do not try to outrace technology, as you will always be behind. Do not plan on using your current digital equipment for the rest of your life; it will be outdated in a matter of years. If you truly are pursuing excellence in teaching and learning, reinvesting in technology is merely part of the challenge. You have to bite the bullet and purchase a suitable digital camera. Currently, 4 to 6 mega pixels is the high end for most affordable cameras. Nikon, Fuji, Cannon, and others make high-end digital cameras that are designed more for the professional photographer. They have advantages of interchangeable lenses, including macro and telephoto, metered lenses, expanded ports for accessory flashes, and other options used by professionals. They also have much more manual functions, again more for the advanced photographer. These types of cameras are very expensive and bulky. They are not easily transported and are not easily operated by staff and are in the author’s opinion overkill for average cosmetic clinical photography.

A number of “off-the-shelf” digital cameras are available for under \$1000; these take excellent clinical photographs, including macro. There are some basic instructions that must be followed to control and enhance clinical photography. I lecture all over the world with these types of images and can attest to their adequacy. I currently use an upper-end digital camera that has been modified by an aftermarket company for clinical and macro digital photography. The camera is compact and lightweight, has no special bulky flashes or lenses, and functions wonderfully for 99.9% of cosmetic surgery photographic needs. A small camera of this nature is easily transported to multiple offices, the operating room, the emergency room, and home and on the road.

The next tool that you will need is a laptop computer. I suggest using this laptop for all of your imaging; do not store images on any other computer.⁵ Transferring images between multiple computers is time consuming and confusing, and images are commonly deleted inadvertently. By having all of your images on a laptop, you will never be without them and will know exactly where they are; you can always take them with you. The true power of digital technology is the ability to carry your entire “slide

collection” with you at any time. Now you can create lectures and publications on the airplane or at the barber shop, work, or home. Regardless of what type computer is used, one must religiously back up his or her images on a regular basis. A lost or stolen laptop or a malicious virus can wipe out your entire “slide” collection, which is a sickening thought, let alone event.

In addition, your computer will be used for your actual presentations. Although multiple presentation programs exist, Microsoft PowerPoint is currently the most popular and universal presentation program. The Windows XP operating system has made image manipulation and use easier than ever. Buying a laptop is like buying a car or a boat; one should buy the biggest and fastest that he or she can afford. In today’s environment, several specifics are important. Digital images are memory intense, and if video is used, this requires even more power. The author recommends a processor of at least 1 gigahertz, a hard drive with a minimum of 30 gigabytes, a video card with a minimum of 32 megabytes of video ram, system RAM memory of at least 256 megabytes (512 to 1024 megabytes being preferable), a CD writer (a DVD writer is preferable), and capabilities to capture video. A serious problem has been encountered with even some of the highest quality laptop computers when playing back digital video during a PowerPoint presentation. The video card set up on some name-brand high-end computers may be such that when attempting to play a video in your PowerPoint presentation, you can see the video on your computer, but not on the main projector screen. The author has experienced and witnessed many presentations go awry because the video that was the crux of the presentation would not play in the lecture hall. The author does not endorse any specific computer but has not had this problem with the Dell computer 8100 and 8500 series laptops (www.dell.com). This may not apply to other Dell models. Make sure this conflict does not exist when considering purchasing a computer for digital imaging and presentations. If your particular computer does not show video on the projector, try toggling your display function key; sometimes the video will project on the projector but not the laptop. If a digital camcorder is to be used, a fire wire (1394) port on the computer is a big advantage for downloading video to the laptop. Most home-quality digital camcorders take excellent clinical video. Common camcorders have excellent macro capabilities and are versatile in many light conditions. A tripod or monopod is essential to make quality stabilized clinical video. The author has used common small-format camcorders to film full-body procedures such as

abdominal fat harvest as well as super macro procedures such as transconjunctival blepharoplasty. Most upper end digital camcorders can do both with amazing quality.

DVD recorders are in their infancy, and major compatibility issues exist. These discs are desirable as they can hold almost 5 gigabytes of data; this is very handy when dealing with large images or video files.

Many images require editing; thus, some type of image editing software is necessary. Many commercial digital imaging systems are available, but mastering inexpensive Photoshop type programs can serve the same basic tasks. The author rarely archives a raw image but usually performs some type of editing such as contrast or color correction, cropping, or resizing. In the “old slide days of the last millennium,” making quality, standardized before and after slides was a serious task. With image editing, one simply opens both images, makes them the same size, and with a single mouse click, stitches them together. There is no longer a need to lecture with two slide projectors.

Fallacy 2: Presentation Programs Are Complex and Difficult to Learn

The author has heard many practitioners state that they are too old or do not have enough time to learn how to use PowerPoint. This is almost always far from the truth. If a person can get through a residency program and learn cosmetic surgery, he or she is certainly capable of learning PowerPoint. As to the age question, the author has had some very rewarding experience teaching older practitioners how to use the basics of PowerPoint.¹ I have seen them blossom and truly appreciate the freedom and accomplishment of learning something new. Age is only important in wine and cheese!

A digital projector is also a handy thing to own if you lecture frequently. It is particularly useful for local presentations, marketing and seminars, and business meetings. Most lecture venues have powerful digital projectors, and thus, owning one is not a necessity. The author has found local hospital audio visual departments that are willing to loan projectors to doctors on staff.

Pearl 3: The Best Way to Learn Powerpoint Is to Play With It

In this age of computer games, learning can be fun. The author suggests use of the included PowerPoint tutorials; one should simply play with the program.

Make a simple slide, and then browse the various menus to see what effects and changes are possible. You will be amused and enthralled with the possibilities. This author has published several journal articles that can also assist clinicians on the basics of making PowerPoint presentations.^{1,6}

Pearl 4: Keep Your Presentations Simple

Because of the novelty of digital presentations, many presenters were overly aggressive in using various enhancements such as animations, transitions, and sounds. A decade ago, playing the “screeching car tires” sound when your title appeared was chic; now it is sophomoric.

The initial key to any presentation is an acceptable, uncluttered background. Many standard backgrounds are available with PowerPoint. These default backgrounds are usually set up with proper contrast between font (text) and background color. In a large lecture hall, this contrast is imperative to view the detail. A common error is to include too much small text on a PowerPoint slide. Cluttered slides detract from the content and confuse the audience. Because there is no extra cost, there is no reason to use cluttered slides.

Animation is the single best and worst thing that has happened to digital clinical presentations. Although creative animation can emphasize a point or guide the audience through a process, its overuse can seriously detract from presentation content. In addition, overuse of animation can complicate the timing and progression of a presentation, as well as make it longer.

Inserting or dragging and dropping images into a slide in a PowerPoint presentation is as simple as several mouse clicks. The image is scalable, meaning that it can be resized without losing perspective. Multiple images may be inserted into a slide, and the images can be edited directly in PowerPoint. It is easy to enhance the color and contrast of an image as well as to crop the borders. Using the PowerPoint drawing tools, arrows, text, and symbols can be added to images.

In the author’s opinion, the single most important advancement in digital presentation technology has been the addition of video. The use of movies in a “still” lecture adds to a presentation in much the same way television is superior to radio. One cannot totally appreciate performing a cosmetic procedure from still images in the same manner as real-time video. Making clinical video movies with a home digital camcorder has been discussed. Transferring them to the computer is a separate task and does have a learning curve. Many entry-level video-editing programs are available for under \$100, and most new digital camcorders

come with editing software. The user friendliness of video capture and editing software has increased exponentially over the past years, and it is actual fun to become an academic producer. One caveat is do not count on using the video clips from your digital camera for serious presentations. Many digital still cameras are now capable of capturing short video movies as well as images. These movie clips are very low resolution and may be suitable for emailing personal movies but are below the standard required for a full-screen presentation.

Raw, uncompressed video is extremely memory intense, and thus, compression is usually required for seamless video integration. The MPEG 1 compression scheme is one of the most common types of video compression in use today. This format works well in PowerPoint presentations and is not so memory intense as to slow down the presentation. Because it is compressed, the actual video does not usually fill up the computer or projector screen, but when projected in a large room, it is extremely magnified and easy to see. Other video formats such as MPEG 2 or AVI are very memory intense and do not currently seamlessly integrate with PowerPoint. These video clips are full screen but are truly memory intense and are not recommended for beginners.

Fallacy 3: If a PowerPoint Presentation Works on Your Computer, It Will Work on Other Computers

Unfortunately, there are many variables and compatibility issues that can turn a well-rehearsed lecture into a presentation nightmare. Most of us that attend meetings have seen more than one presenter fumble around trying to run a presentation from the podium. In the worst case, some are not able to present at all. This is especially true if video is incorporated into a presentation.

Pearl 5: Understanding the Basics of How PowerPoint Handles Images and Video Files Will Insure a Proper Backup Strategy and Allow seamless Compatibility With Other Similar Computers

Although most presenters take their laptops to a meeting, it is not totally necessary if you have your presentation backed up on CD or comparable media. It is great feeling to walk into an auditorium with a CD in your pocket instead of a bag of rattling carousels. If you are using video in your presentation, several points that are very important to successfully

replay from a CD. When you insert an image into a PowerPoint presentation, the image becomes embedded by default. This means that the digital code of that image becomes part of the presentation, and your pictures will always be there. Sometimes you will see a presenter show a PowerPoint slide, and instead of an image, you will see a geometric icon instead of the image. This is because the image was linked, instead of the default embedding. The best way to avoid this is to follow the menu commands on the PowerPoint menu INSERT and then PICTURE FROM FILE. This will always embed the image. Video, on the other hand, is linked to the presentation and not actually integrated in the presentation. This means that if you make a PowerPoint presentation on your laptop and insert a video, it will play on your computer without a problem. If you back up the presentation on a CD without the video, your presentation will play, but the video will not work. Again, the author has seen presenters be unable to give a featured lecture that they spent many hours preparing because of this problem. In order to circumvent this problem, the PowerPoint presentation and video clips must reside in the same folder before backing up on CD. For instance, if I have a talk on facelift and I want to show some facelift footage, I first need to create a folder on my hard drive to hold both the facelift PowerPoint presentation and the facelift video clips. I will create a folder anywhere on my C:\ drive and will arbitrarily call it "facelift PowerPoint" (the name does not matter, just that you have a dedicated folder). The next step is to place or copy the videos that you wish to use in that presentation into that folder. The last step is to create your PowerPoint presentation and insert the video clips that already reside in that folder. In this way they are linked to that folder, and PowerPoint will look for that link in that folder whether it is on your hard drive or a CD. The PowerPoint presentation must also be saved in this dedicated folder. Failure to observe this order can lead to great frustration on the podium.

Finally, the best laid plans can go awry. You may make a flawless digital presentation only to have it fail because of unforeseen problems in the lecture hall such as computer compatibility issues. To combat compatibility issues, it is a good idea to plan ahead. If you are attending a large meeting, find out who is running the audiovisual setup and call ahead to inquire about your specific computer and model for any known issues. Also, when checking in to a hotel at a conference, the author always proceeds directly to the lecture hall or speaker ready room to test the computer, CD, and projector personally. When in doubt, make multiple backup copies as well as bring your own computer.

Pearl 6: Never Keep Your Laptop and Your Backed-Up Presentations in the Same Bag

This pearl is made under the assumption that anyone wishing not to experience the "academic suicide" of losing all your digital images is smart enough to frequently back up his or her computer.

The author has personally seen a case where a keynote speaker at a national meeting lost a carry on bag with not only the computer, but the back-up CDs as well. Do not fall into that trap; pack your back up discs separately.

Pearl 7: The Best Doctors Take Many Pictures

This is a universal observation that I have made during my 20-year career in facial surgery. Surgeons that are passionate about their work document it very well and use those images to better their skills, as well as for academic presentations and marketing.

Pearl 8: Standardized, Quality Images Will Enhance the Creditability of the Presenter

Many articles have been written about photographic standardization for clinical photography.⁷⁻¹⁵ Although we all want to take the best images, overkill can exist in this area. If one is doing a statistically significant scientific study based on clinical photographs, then absolute standardization is a prerequisite. Standardization devices such as head holders, multiple remote flashes, flash reflectors, and umbrellas may be required. One can literally invest thousands and fill an entire room with complex and sophisticated photographic paraphernalia. For the average cosmetic surgeon in the trenches of private practice, this level of proficiency is not necessary. It is necessary to take relatively standardized, consistent images. These images should be consistent in distance, white balance, background, and lighting. With a little forethought, some simple standardizations, and a good quality of digital camera, this is easily accomplished.

In pursuit of "relative standardization," this author has placed a white, nonglossy poster board on the back of the door in each room in the office (Figure 1). White is used because when using a colored background, printing the images can quickly deplete your colored ink. Setting up each room with a standardized background is convenient, as it is difficult to channel all patients to a dedicated photo room in a busy practice. I promise that you will take more images when you can do it in any room. Nothing looks worse than a photos taken with a wooden door for a background or with a patient sitting in an exam chair with counters,



Figure 1. A white poster board secured to the back of a door in each treatment room provides a convenient photographic background.

instruments, and other distractions in the background. Preferably, the room or ambient lighting should be consistent in these rooms. If not, then adjustments may be necessary to the camera. The next key is to standardize your camera and subject in terms of poses, distance, and flash.

It is imperative to take all of your images in a standardized manner. Each patient should be positioned in the same manner for a given pose. The focal distance can be standardized by securing a piece of dental floss or chain to the bottom of your camera and holding it to the nose (or appropriate area) of your subject (Figure 2). This insures that you will be at the same distance from the patient in all views. An alternative means is to make a mark on the floor for the photographer to stand. Regardless of the means, focal distance standardization is imperative. This will save you hours in postprocessing because your images will be the same size.

The pose of the patient relative to the camera and background is the next most important factor. Most practitioners take a minimum of a frontal, right and left oblique, right and left lateral, and frequently posterior views of a patient. Various specialties and

specialists require other poses. Most common facial views are taken with the patient's Frankfort horizontal plane (imaginary line from the external auditory canal to the infraorbital rim) parallel to the ground. Observing this will prevent a "chin-up" or a "chin-down" view. Taking a preoperative lateral photo of a facelift patient with their chin down and then showing the same patient postoperatively with their chin elevated can imply artificial results and is a hallmark of incredibility. Clinical imaging is no place for trick photography. The frontal and posterior views are the most difficult to eliminate shadows. If the camera is straight on to the subject, minimal shadow is apparent. Hair, ears, and clothing can cause shadowing. Solutions include taking digital images without the flash or using an accessory slave flash, which can be purchased inexpensively at camera stores. The oblique view is



Figure 2. A chain or string attached to the camera can help standardize the focal distance for each patient.

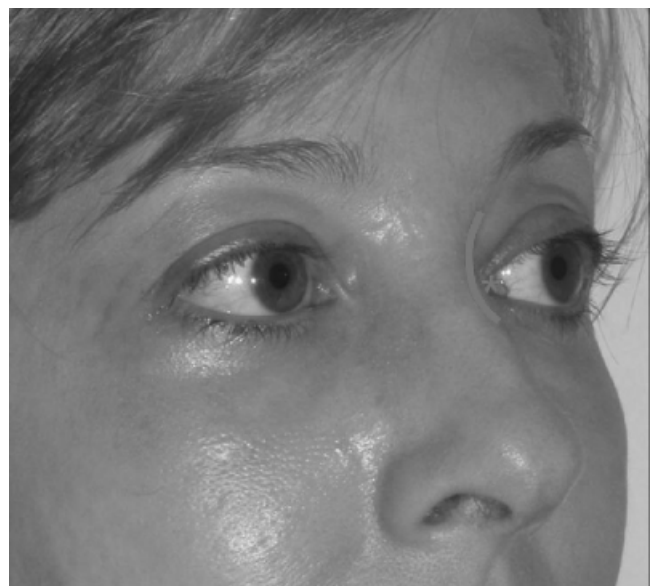


Figure 3. Aligning soft-tissue nasion with the lacrimal caruncle will standardize the oblique facial views.



Figure 4. Taking clinical photographs with traditional flash positions can cause unwanted shadowing on the background.

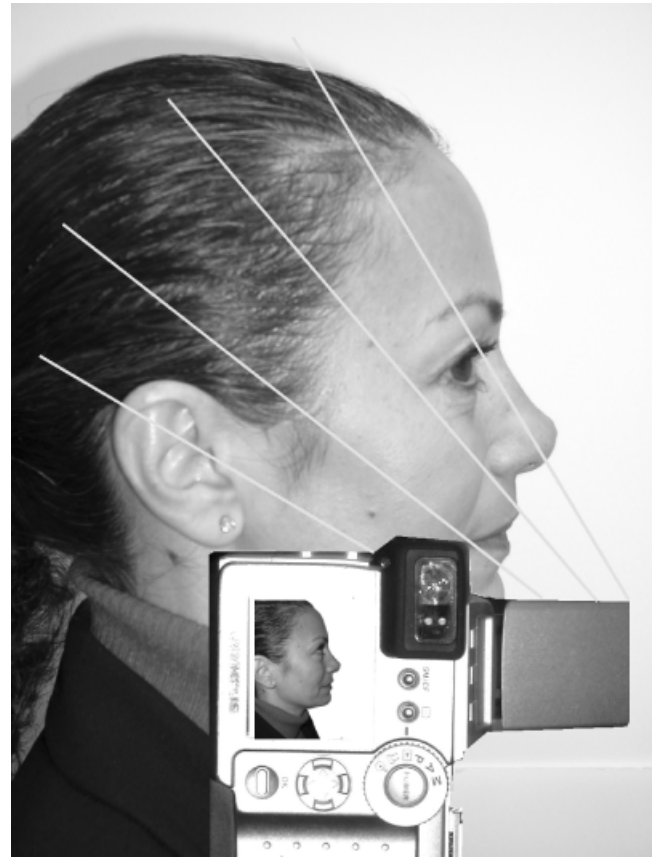


Figure 5. Repositioning the camera so that the flash changes direction can eliminate problematic shadows.

perhaps the most important view when evaluating facial structures. This is also the view that is the most commonly standardized. An easy means of standardizing the oblique facial view is to line up the soft-tissue nasion with the lacrimal caruncle of the contralateral eye (Figure 3). When taking oblique or lateral photographs, shadow is very problematic but is very correctable. If the direction of the flash is passed over anatomic projections (nose, chin, breasts, etc.), a shadow is cast (Figure 4). In order to eliminate shadow in the oblique or lateral view, the photographer merely needs to rotate the camera sideways so that the flash points toward the side being photographed. If one is taking a right lateral facial profile image, then the camera should be rotated vertically so that the flash is on the same side as the patient's nose (Figure 5). This prevents the nose, chin, neck, etc. from blocking the flash and causing a shadow. The camera is rotated vertically in the other direction when photographing the left side. Another alternative to eliminating profile shadow is to turn off the camera flash and rely on ambient lighting (Figure 6). When photographing anatomy such as the roof of the mouth, the nares, or the submental or inframammary area, the camera is

held upside down so that the flash comes from below, thus preventing a shadow (Figure 7). Another commonly experienced photographic pitfall that erodes operator credibility is the taking of a preoperative picture without flash or in poor lighting and the postoperative picture with flash or increased lighting. No flash or poor lighting always enhances wrinkles, acne, orbital fat prolapse, and other flaws. Taking the same image without a flash can be so dramatic that it could be passed off as a surgical result (Figure 8).

Several other details should be considered for repeatable images. Pay attention to jewelry, glasses, and makeup. Always takes a series of preoperative images with the patient in full makeup and without makeup immediately preoperatively. If the patient wore glasses in the preoperative image, they should have them in the postoperative image. Jewelry that is large, obtrusive, or distracting should be removed for photography. When taking facial views, a collarless shirt or blouse is preferable. A neutral-colored patient gown is preferred, as a red shirt (or other bright color) can reflect color to the patient's face, skewing the true hue and saturation of the image. Patients should be reminded not to smile and should always look into

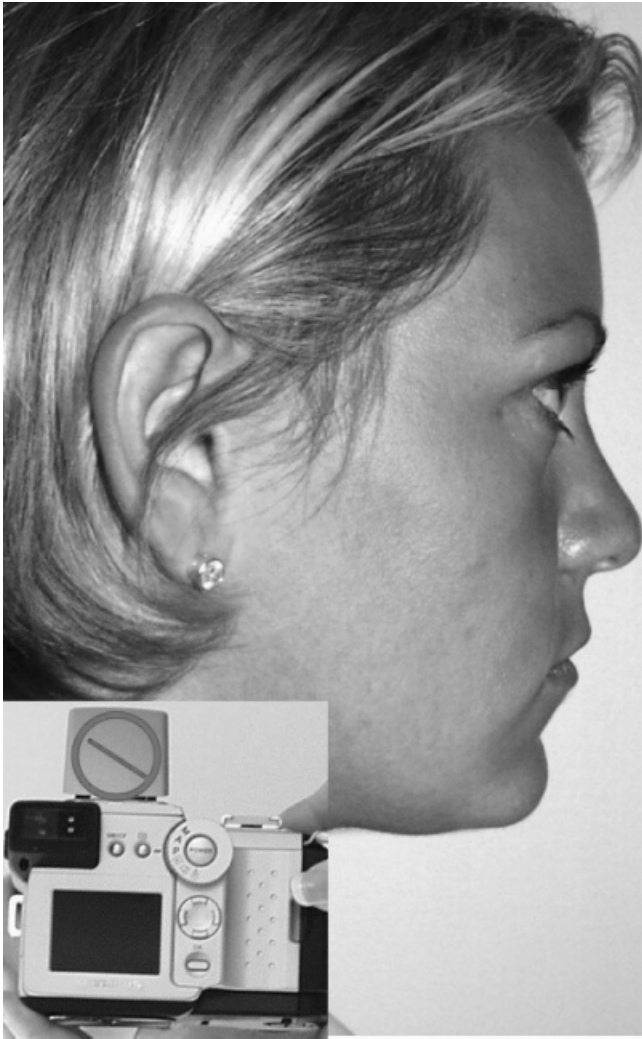


Figure 6. Disabling the flash is an effective means of eliminating shadows and works best with adequate ambient room lighting and/or manual camera adjustments.

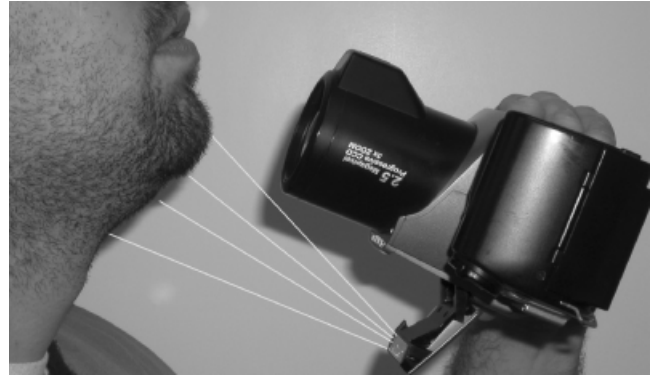


Figure 7. Inverting the camera so that the flash shines upward is a convenient means of illuminating difficult photographic areas such as the submental area, the roof of the mouth, and the inframammary fold.

the camera or in oblique or lateral views should focus on an object that is standardized. The author glues a red dot on the wall and asks the patient to stare at it in the oblique and lateral views. A step stool is also necessary, as the patient may be considerable taller or shorter than the photographer, and pictures taken looking up or down will be distorted. Another problem is the blinking patient. It is very frustrating that some patients simply cannot be photographed with a flash camera without blinking. The author may take 30 images to get one or two acceptable nonblinking images. Using the red-eye reduction function that is available on many digital cameras may assist; turning off the flash or photographing these patients next to a window or outdoors may be necessary. An additional help to photograph individuals that blink at the flash is to have them close their eyes and count to three. Tell them to open their eyes on “three.” By snapping the

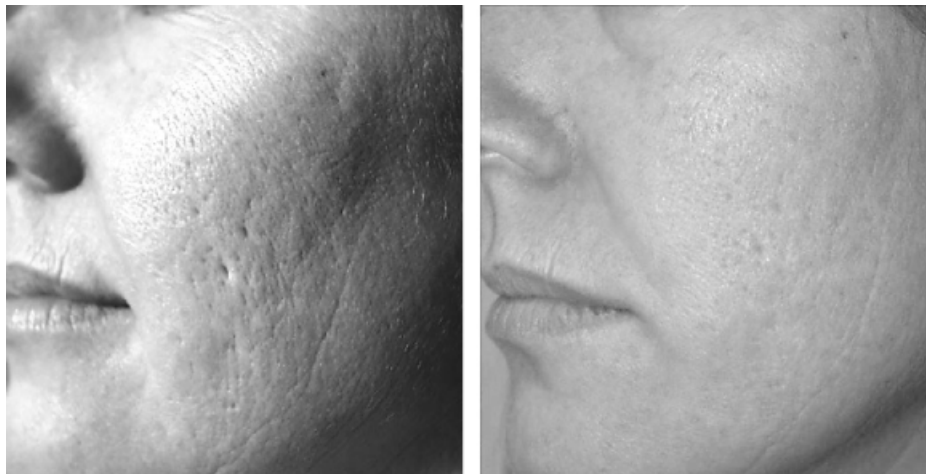


Figure 8. This image shows the same patient photographed with the same camera without a flash on the left and with a flash on the right. Preoperative and postoperative photographs should always be taken with the same lighting. Failure to do so can make such a drastic difference that it can appear as a preoperative and postoperative result.

picture on the three count, their eyes will be open. In the past, film processing meant that you frequently had “surprises” waiting for you when you got your film back from the laboratory. With digital cameras and preview screens, there is never an excuse to take a poor image.

For macro photography such as nevi, eyelids, and lesions, the paradigm has changed. With film cameras equipped with 100-mm macro lenses and ring or point flashes, the photographer used to be able to get as close to the subject as possible. With most digital cameras, the opposite is true. These cameras contain software that is metered for automatic conditions, and most cannot compensate for ultramicro distances. If you get too close to the subject, you will overexpose some areas and block the flash in other areas, causing a shadow. For instance, if you wanted to make a macro photograph of the lateral canthal area and held the camera very close, you would have areas of overexposure and underexposure (Figure 9A). To compensate for this, the trick is to stay back a foot or so from

the subject and use the zoom to get close to the area. By doing this, you are far away enough for the flash to disperse over a larger area (Figure 9B). With digital editing, you can crop any extraneous anatomy. If your picture was taken at a sufficiently high resolution, your image will be “macro” after cropping out the unwanted structures (Figure 9C). Using Figure 9 as an example, if you want a close-up of the lateral canthus, stand back about a foot, zoom the camera in all the way, and take the picture. In your image editor, you select the area that you wish to keep and crop the rest. The result is a macro image of only the anatomy that you wish. This was not possible with slide photography, and thus, in the past, you had to get close because what you saw is what you got (unless you sent off your slide to the processing laboratory to be enlarged, cropped, and printed).

Most off-the-shelf digital cameras are configured for a broad range of photography from macro to infinity. Because of this, the lenses are less versatile than traditional 100-mm macro lenses. Because most

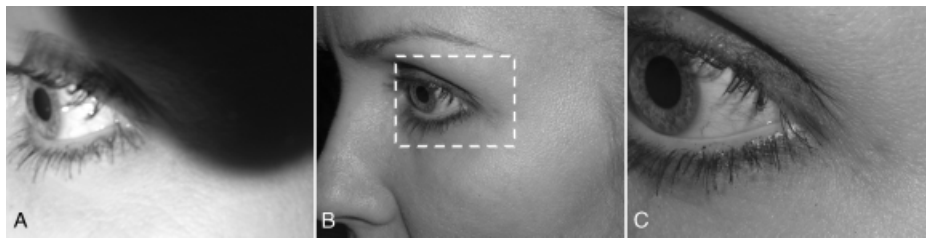


Figure 9. (A) The underexposed and overexposed areas when the lens is too close to the subject. (B) A longer distance when taking a macro shot of the lateral canthus with adequate exposure. (C) The same image, now cropped to show only the desired area.



Figure 10. (A) Lens distortion of a typical digital camera when the camera is held too close to the subject. The same picture taken with the same camera at a distance of 3 feet. Zooming in on the subject eliminates the distortion (B).

clinicians previously used slide photography with macro lenses, they still attempt take images with the lens close to the patient. Doing so can cause distortion of the anatomy closer to the camera (Figure 10A). Figure 10B shows the same subject taken with the same camera, but the photographer has backed several feet away from the subject and has used the lens to zoom into the subject, thus maintaining the same anatomic aspect ratio. To maintain proper anatomic ratios, take sample macro pictures of a commonly photographed object such as the eye but place a millimeter ruler next to the eye and find the correct focal distance and zoom to replicate accurate measurement.

Pearl 9: Archive Your Images in a Convenient Manner

Just taking digital images is of little use if you cannot find them. Although proprietary software exists exclusively for digital image archiving, it is unnecessary. This author has been using digital photography for clinical patients for a decade and has thousands of images archived.

A convenient means of establishing an archiving system is to create a dedicated directory on your hard drive. To create a new directory, proceed to your root directory (usually C:\). In most versions of Microsoft Windows, this can be located by clicking on “My Computer.” The following steps show how to make new folders.

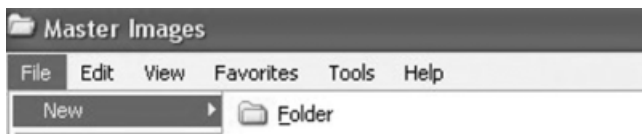


Figure 11. Creating a new folder or subfolder is the key to successful archiving.

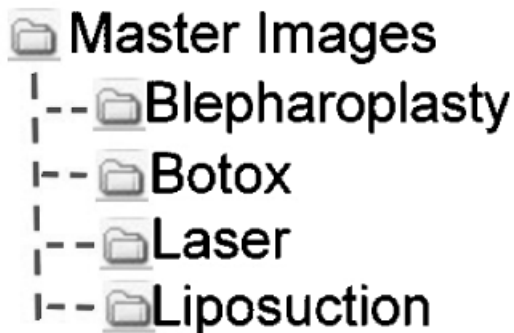


Figure 12. A master folder for pictures with subfolders for each main procedural category serves to organize images.

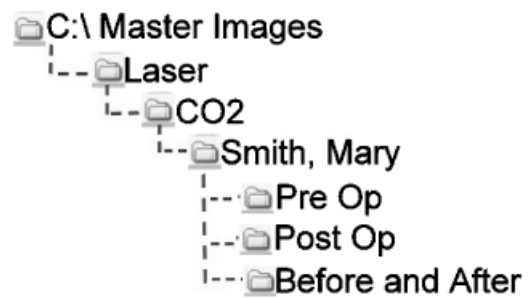


Figure 13. The final stage of the directory tree is the patient subfolder.

1. While in your C:\ directory, select FILE. Then select NEW, and then select FOLDER (Figure 11).
2. To rename the folder, right click on the folder and type a new name.

The next step is to make a main folder where all your images will reside. This can be called anything you wish, but for example, we will call it MASTER IMAGES.

After you make the MASTER IMAGES file, you need to create a new subfolder for each main procedure you perform. An example is shown in Figure 12.

If you desire, you can make subfolders for each procedure. In other words, you may have a folder for LASER and under that you may make subfolders for CO₂, ERYBIUM, PULSED DYE, etc.

The final step is to make subfolders for your patients and to file them in the appropriate folders. If Mary Smith is a laser patient, you go to the MASTER IMAGES folder and then to the LASER folder and then to the CO₂ folder. In that folder, you will make a new folder for SMITH, MARY. You will now place all of Mary’s images in this folder. If you wish, you can continue with subfolders for PREOP, POSTOP, etc. (Figure 13).

By using this scheme, it is easy to find a given patient by looking in that procedure category folder. Many patients will have multiple procedures, and thus, their respective images will reside in multiple folders. By simply doing a Windows search, you can find all of the images for any patient or procedure in any folder.

Conclusion

Clinical photographic standardization is frequently taken for granted. One only has to look at some contemporary clinical journals and academic presentations to realize that many of the astute practitioners unfortunately pay little attention to quality clinical photography.

Digital photography has changed the paradigm for taking clinical images. Several distinct differences exist between digital cameras and previously used film cameras with macro lenses. Failure to realize these differences can result in poor-quality images. Following several simple rules of photographic standardization can greatly enhance the clinical images of the average practitioner.

As digital cameras and video continue to evolve, the standardization of clinical photography will become simpler. No matter how advanced the equipment evolves, the attention of the surgeon to the quality and standardization of his or her pictures will always be necessary to evaluate one's work critically.

Those practitioners that use PowerPoint presentation software should heed several basic tenets, including backup strategies to prevent problematic malfunctions and compatibility issues.

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