

# PSS NEWS

A Distance Learning Format for Continuing Medical Education in Optometry

## The Role of Punctal Plugs in Dry Eye Management

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COPE 68152-AS

2.0 Hours

### Learning Objectives:

1. To review the basic epidemiology and risk factors for dry eyes
2. To review diagnostic and management options for dry eyes
3. To discuss the specific role of punctal occlusion in the management of patients with dry eyes

According to some studies, nearly one quarter of all patients we see in primary eyecare suffer from dry eye syndrome.<sup>1</sup> Although most insurances treat (and reimburse) dry eye syndrome as a medical diagnosis, many optometrists do not. Many O.D.'s still give patients different samples of artificial tears and tell them to get whatever brand they like from the local drug store. This philosophy must change because a patient suffering from dry eye syndrome is not merely someone with a "nuisance" complaint. Rather, this patient may have significant ocular disease which must be addressed. Left untreated, this condition can compromise the integrity of the eye and result in sight-threatening sequelae.

To make matters worse, by not properly managing this condition, we are excluding many patients from enjoying the benefits of contact lens wear. When you consider that some studies show that almost half of all contact lens wearers experience some level

of discomfort<sup>2</sup>, you can see what a tremendous problem this can be.

After this article you will see that establishing a structured approach to dry eye management is the best for your patient. You will also see that having this approach is also great for your bottom line and can be a great practice builder.

### Diagnosing These Patients

Many cases of dry eye are obvious with the initial presenting symptoms. Some of the more common things dry eye patients complain of are burning, stinging, photophobia, redness of the eyes, a sandy or gritty feeling, and foreign body sensation. However, just because your patient does not come in complaining of these symptoms does not mean that there is no problem. Many patients do not complain of these things until you specifically ask about them. Many of them are already self-medicating with over-the-counter artificial tears and

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<sup>1</sup> Thimons J. Using lubricant eye drops to treat dry eye. Supplement to Review of Optometry. Nov 15, 1999: 16-20.

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<sup>2</sup> Nichols KK. Tear film and contact lenses. Supplement to Contact Lens Spectrum. June 2000: 4s-7s.

forget to tell you about this since it is not a “real medication.” If you do that, you will be amazed at the number of patients who admit they are having some problems.

Of course, there are many other symptoms and factors associated with dry eyes. Thus, you should consider any of the following when examining these patients:

*Age and sex:* As with many physiological functions, tear production and ocular surface compromise tend to worsen with age. One of the reasons for this is a deficiency in androgen hormones which are believed regulate the homeostasis of the lacrimal and meibomian glands. This is especially true for women around the time of menopause.

*Environment:* Air conditioners, heaters, and ceiling fans all tend to reduce the amount of moisture in the air. Thus, patients who work around air conditioning and heating vents may be more prone to dry eyes. Some patients freely place small fans on their desk to keep cool during summer; while that may be great for beating the heat, it can exacerbate any level of dryness. The same applies for patients who spend significant time working at computers. Studies demonstrate a decreased blink rate while patients are staring at the computer which can trigger dryness and discomfort.

*Systemic disease:* This can be a strong contributing factor to dry eye, especially among patients with diabetes and rheumatoid arthritis. One of the most common manifestations of this is Sjogren’s syndrome, an autoimmune condition which involves the triad of dry mouth, dry eye, and arthritis.<sup>3</sup>

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<sup>3</sup> Thimons J. Using lubricant eye drops to treat dry eye. Supplement to Review of Optometry. Nov 15, 1999: 16-20.

*Medications:* Many common systemic and ocular medications can cause or exacerbate a dry eye condition. Among some of the more common systemic medications are antihistamines and cold remedies, antihypertensives, anticholinergics, antidepressants, oral contraceptives, and retinoids. Many ocular medications, such as glaucoma medications, contain the preservative benzalkonium chloride and can contribute to ocular dryness.

*Contact lens wear:* The insertion of a contact lens into the eye can reduce the thickness of the tear film which will cause the tears to evaporate quicker. To make matters worse, studies show that the humidity in front of the cornea is lower with contact lenses than with glasses, which further increases evaporation of the tear film.<sup>4</sup> Newer studies demonstrate that contact lenses can split the tear film and contribute to dryness. Both of these factors can lead to dry eyes in a patient with no signs before contact lens wear. Although many practitioners claim that their patients do not suffer from any problems relating to dryness, the reality is the complaints from dry eyes remains the number one reason why patients drop out of contact lenses. Many of these patients drop out of lenses and eventually drop out of your practice as well. By properly addressing dry eyes as a disease you will help boost your contact lens practice at the same time.

## **Management Options**

As with any other disease, your first step should be patient education. Specifically, you should educate these patients that their condition is chronic and will require long term management. Explain to them that a

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<sup>4</sup> Barr J. How dry I am. Dry eye and contact lenses: A supplement to Contact Lens Spectrum. June 2000: 3s.

diagnosis of dry eye syndrome actually describes a group of symptoms which can be caused by a combination of abnormal physical, metabolic, or environmental conditions.<sup>5</sup> Depending on the severity of their condition, management may be as easy as instilling eye drops periodically. Some patients may require additional treatment options such as punctal plugs and/or topical steroids.

Improve general hydration. Have the patient drink eight 8-ounce glasses of water a day. By increasing overall body hydration, you may have a positive impact on ocular hydration as well.

If the patient works or lives in a dry environment, see if they can do something to improve that such as adding a humidifier in the winter or redirecting vents so the air does not blow directly on them.

The next thing you should do for virtually every dry eye patient complaining even of mild discomfort is recommend warm compresses every morning. The rationale is that you want all of the meibomian orifices fully open and functioning. The meibomian glands play an important role in the stability of the tear film which directly influences the evaporation rate of tears.<sup>6</sup> Dysfunction of the meibomian glands increases with age and often leads to a lowered TBUT and an evaporative dry eye.

### **Dry Eye Protocol**

One of the most important parts of managing dry eye patients is to have a consistent protocol. When I first graduated

from optometry school, I was like many optometrists who told patients to select whatever lubricating drop they wanted from the drug store to relieve their dry eye symptoms. Many times, I was hesitant to even recommend a particular product because I did not want patients thinking that I was selling them on a particular brand. Since then, I have realized what a terrible disservice I was doing to my patients. My patients were coming to me with a legitimate medical concern and I was not giving them my recommendations. Since I have adopted a more structured approach to dry eye management, my patients are much happier. In doing this, my practice has benefited in increased office visits, punctal occlusion, and an increase in the number of contact lens patients. I have outlined my protocol for all dry eye patients below:

### ***MY DRY EYE PROTOCOL***

#### ***1. Initial Comprehensive Exam***

- If a patient has dry eye symptoms as part of a complete eye examination, document these complaints and perform appropriate diagnostic tests such as TBUT, Shirmer, or Phenol Red. Also include an evaluation of the corneal surface including staining with Sodium Fluorescein, Rose Bengal or Lissamine Green. Although there are fancy tests you can order which require special equipment, such as Tear Assay, I tend to rely heavily on the fundamental, routine clinical tests for dry eye diagnosis.
- If you have a questionnaire have the patient fill that out.
- If not part of a complete exam, bill this as an office visit.
- Give the patient a bottle of low viscosity artificial tears. You should be able to

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<sup>5</sup> Thimons J. Using lubricant eye drops to treat dry eye. Supplement to Review of Optometry. Nov 15, 1999: 16-20.

<sup>6</sup> Snyder C. Diagnosing dry eye. Dry eye and contact lenses: A supplement to Contact Lens Spectrum. June 2000: 9-13s.

get free samples from your local sales rep.

- Instead of telling the patient to buy more at the drug store, have the patient return for a Dry Eye Follow-up in 2-3 weeks.
- Educate your patient about other management options. Specifically, introduce the topic of punctal occlusion to them. This serves two purposes: the patient will realize that there are other options available if the artificial tears alone do not suffice. Secondly, the patient will not be fearful of the concept of punctal plugs if they are needed in the future.

## **2. *Dry Eye Follow-up/Collagen Plug Insertion***

- If the patient is better with the drops, perform a quick slit lamp examination and instruct them to buy that particular brand at the store.
- If the patient is not better, or if the patient ended up using the drops six times a day or more you should consider trying a more viscous solution. The other option is adding ointments at bed time. Their day time use is limited because they tend to blur vision.
- Consider punctal plugs if the drops did not help or if the patient is unable to instill the drops as frequently as needed. If you do insert plugs and the patient has health insurance, you should bill for the punctal occlusion:

Bill 68761 E2 or -50 if non-Medicare (Right lower puncta)

Bill 68761 E4 or -51 if non-Medicare (Left lower puncta)

This 68761 code (Closure of lacrimal punctum; by plug, each) to describe the

professional service. The same code applies whether permanent or temporary plugs are inserted. Medicare reimbursement for the procedure includes payment for the plugs.

Reimbursement for punctal plugs is roughly \$140 per punctum. This amount is adjusted by local indices in each area. When more than one punctum is occluded at the same time, multiple surgery rules apply. The first procedure is allowed at 100% and each additional procedure is allowed at 50%.

- You should first instill collagen plugs as a diagnostic test. There is no reason to instill “permanent” plugs until you have determined that they will definitely help the patient.
- If you do insert collagen plugs, have the patient keep track of improvement in symptoms and return for follow-up in roughly two weeks. In order to get reimbursed for both the collagen and silicone plugs, you must wait at least 10 days between the two visits.

## **3. *Collagen Plug Follow-up/Silicone Plug Insertion***

- If punctal plugs weren't successful, discuss options including occluding all four puncta along with aggressive lubricating therapy. Also consider prescribing a mild steroid such as Lotemax which has a good safety profile and can help make patients

with severe dry eye more comfortable.

- If they were successful, insert the silicone plugs. At this point, you can either see the patient for a quick check to make sure the plugs are well-inserted or let the patient go until the next complete exam.

### Discussion of Punctal Plugs:

Most optometrists are licensed to instill punctal plugs for their patients who need them. As with any other condition, success is dependent on both practitioner and patient confidence. The instillation of punctal plugs is a normal routine for many patients with moderate to severe dry eyes. In some cases, it becomes the cornerstone of therapy which may also include the use of topical steroids such as Loteprednol (Lotemax) or a prescription for Cyclosporin (Restasis) or Lifitegrast (Xiidra). The vast majority of patients – 90% or so- demonstrate a significant improvement in tear retention time and thus an improvement in ocular symptoms relating to dry eyes.

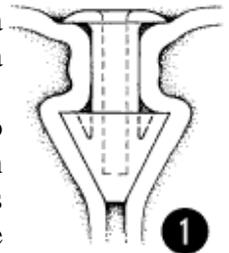
In my practice we start talking about punctal plugs before a patient actually needs them. We want to have the patient mentally ready for this procedure, should the need arise. Please note, however, that Medicare and most other payers expect that a minor surgical procedure, such as punctal occlusion should be not performed as an initial treatment for dry eyes. Thus, documentation in your chart should be adequate to demonstrate that other modes of therapy were unsuccessful. As with any procedure, you should review risks and benefits with your patient and document that you have obtained the patient's informed consent for the procedure.

As with many therapies in the eye care world, there are many options when choosing the brand of punctal plug you should use. In general I prefer brands which give you the option of purchasing pre-loaded sterile plugs which are ready to use. Alternatively, you can purchase a supply of non-sterile plugs in bulk. The chief advantage is reduced cost to the practitioner.

Let's also review the basic guidelines for the insertion of punctal plugs for our patients who need them.

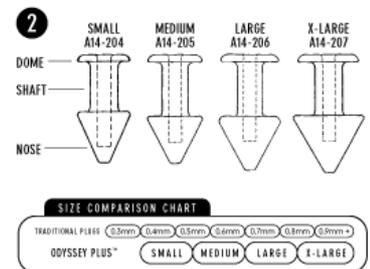
### PREPARATION

Many patients will not require dilation of the punctum and thus the instillation of a topical anesthetic. However, a drop of ocular lubricant may be placed on the occluder to help facilitate insertion. When properly inserted, the occluder's ultra thin dome should be visible at the punctal opening.



### SIZING

While there are instruments available to determine the proper size of plugs to instill, I rarely need them. In most instances, visual evaluation and clinical experience are sufficient for punctal sizing.



## LOADING

A properly loaded position is ensured when the plug's dome is nearly flush with the cannula on the inserter. **Special care should be taken not to tear or perforate the plug.**

## DILATION

In most circumstances, little if any punctal dilation is necessary. If dilation is required, using the dilator end of the inserter, gently insert the dilator tip into the punctum. Remove and promptly insert the plug.

## INSERTION

The reusable inserter has been designed to ease the insertion process. To begin the insertion process:

- Hold the insertion instrument comfortably between your thumb and forefinger and orient your intended trigger finger over the black release button. **Note: Care should be taken not to press the button until after the occluder has been inserted into the punctal opening.**



- Position the plug end of the insertion instrument over the patient's punctum.



- Gently insert the plug into the punctum until the dome is flush with the lid margin.



- Once the plug is in the proper position, press the black release button.
- Pull the insertion instrument away from the patient's punctum.
- Inspect the punctal area to confirm the occluder has been properly placed for optimum occlusion.



**In summary**, managing patients with dry eyes is a small part of our roles as primary eye care providers. By addressing their needs we can provide better service to them and get them some relief.

## CONTINUING EDUCATION QUIZ

This article is worth two (2.0) continuing education credits. This COPE-approved program is accredited by the University of Alabama at Birmingham College of Optometry.

Once you have registered for the course, you will be given an access code and go to [www.flexiquiz.com](http://www.flexiquiz.com) where you will take the quiz. To earn credit, you must receive a grade of 70% or greater.

Please note that all 50 states have different rules and regulations concerning the acceptance of correspondence/internet continuing education. Please verify with your state board of optometry as to the amount of allowable hours and acceptable categories/topics in your particular state.

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### Multiple Choice Questions:

- 1) How many patients are estimated to suffer from dry eye syndrome?
  - A) Nearly one quarter
  - B) Nearly 50%
  - C) Under 5%
  - D) 100 percent
  
- 2) What is the number one reason for patients to drop out of contact lenses?
  - A) They don't want to use contact lens any more
  - B) Discomfort from dryness
  - C) They can't afford them
  - D) They prefer the vision in eyeglasses
  
- 3) Which of the following is not a presenting symptom for patients with dry eye?
  - A) Stinging
  - B) Photophobia
  - C) Gritty feeling
  - D) Discharge
  
- 4) Which of the following statements is true?
  - A) Most patients with dry eye come into the office complaining of dry eye symptoms.
  - B) Many patients with dry eye do not come into the office complaining of dry eye symptoms
  - C) Most patients with dry eye do not wear contact lenses
  - D) Most patients come into the office complaining about everything
  
- 5) According to the article, how does looking at the computer impact dry eyes?
  - A) No impact at all
  - B) It improves dry eye symptoms
  - C) Can worsen symptoms of dry eyes by decreasing the blink rate
  - D) We do not have any information about this yet

- 6) Which one of the following is NOT a part of the triad of Sjogre's syndrome?
- A) Hypercalcemia
  - B) Dry Mouth
  - C) Dry Eyes
  - D) Arthritis
- 7) Which commonly found preservative can contribute to dry eye complaints?
- A) Benzalkonium chloride
  - B) Biguanide
  - C) Polyquad
  - D) Hydroxymethyl cellulose
- 8) Which patient would be most likely to experience dry eye problems?
- A) 12 year old male, non contact lens wearer
  - B) 25 year old male, non contact lens wearer
  - C) 55 year old female computer programmer, contact lens wearer
  - D) 25 year old female dancer, contact lens wearer
- 9) According to the article, what role do the meibomian glands play in dry eyes?
- A) They play no role
  - B) They improve dryness
  - C) They only play a role if a patient uses contact lenses
  - D) They are important in maintaining the stability of tears
- 10) Which drug category has NOT been implicated in contributing to dry eye?
- A) Antihistamines
  - B) Antihypertensives
  - C) Cholesterol lowering agents
  - D) Oral contraceptives
- 11) Patient education of dry eye should include:
- A) Dry eye is not a chronic condition
  - B) Contact lenses may exacerbate dryness
  - C) Environmental factors do not play a role in worsening dry eye
  - D) Switching to a different contact lens will not help alleviate the problem
- 12) Which action can help a dry eye patient?
- A) Drink 2 or less glasses of water daily
  - B) Redirect air vents to blow in your face
  - C) Stop humidifier use
  - D) Apply warm compresses every morning
- 13) Which one of the following will NOT help a patient complaining of dryness?
- A) Positioning a fan to blow directly on their face
  - B) Positioning a fan not to blow on their face
  - C) Redirecting vents so the air will not blow on their face

- D) Using a humidifier
- 14) Which of the following should you do prior to instilling punctal plugs?
- A) Make sure that you document other therapies attempted prior to punctal plugs
  - B) Review risks and benefits with the patient
  - C) Obtain informed consent
  - D) All of the above
- 15) Which of the following are appropriate tests for a patient with dry eye symptoms?
- A) TBUT
  - B) Shirmer
  - C) Phenol Red
  - D) All of the above
- 16) After the initial comprehensive exam, when should the patient return for a follow up?
- A) In 1 week
  - B) After at least 10 days, preferably 2-3 weeks
  - C) In 1 month
  - D) In 1 year
- 17) Which type of artificial tear product should be tried first?
- A) Low viscosity
  - B) Medium viscosity
  - C) High viscosity
  - D) Ointment
- 18) Before inserting silicone punctal plugs, you should
- A) Try nylon plugs
  - B) Try “permanent” plugs
  - C) Try collagen plugs
  - D) Insert the plugs before the patient changes her/his mind
- 19) After insertion of collagen plugs, when should the patient return for a follow up?
- A) Next day
  - B) Less than 10 days
  - C) 2 weeks
  - D) 1 year
- 20) If punctal plugs are not successful in the patient, your next option is to
- A) Occlude all four puncta
  - B) Prescribe a mild steroid
  - C) Use aggressive lubricating therapy
  - D) Any of the above are viable options