

Sean Mulvaney, M.D.

About the Stellate Ganglion Block (SGB)

The stellate ganglion block is a safe procedure that has been in wide medical use since the 1940's. It is a procedure that was originally done for some chronic pain conditions and its use for PTSD is a recent indication. The SGB is an ultrasound-guided injection in the side of the neck which places long-acting local anesthetic around the main nerve that controls the "fight or flight" response (the sympathetic nervous system). It is a nearly painless procedure. Multiple peer-reviewed medical studies show that SGB results in significant long-term improvement in chronic anxiety symptoms associated with post-traumatic stress disorder (PTSD).

What to expect and how to prepare for an SGB

- **At least 1 week prior to the procedure:** Arrange for a driver to bring you home or plan on using a driving service. *This procedure cannot be done if you are currently taking anticoagulation (anti-blood clot) medication.* Ask your prescribing physician if you are safe to briefly stop these medications to have an SGB. Have him / her fax a note to our office stating your anticoagulation can be temporarily stopped and restarted after SGB.
- **The day of the procedure:** Wear a top with a loose open neck, or a gown will be provided. Remove any necklaces. Avoid eating or drinking for four hours before the procedure. After the procedure, plan on taking it easy for the rest of the day. The eye on the treated side will look droopy for about 3 - 8 hours after a successful SGB. Stimulants may work against what the SGB is trying to do. If you take Adderall or other stimulants, try not take them on the day of the procedure and for 2 days after the procedure. Limit tobacco use.

What happens during the SGB procedure?

- We will discuss the procedure in detail; as well as the potential benefits and risks. This is called informed consent and is routinely done before medical procedures. Let us know if you have any allergies to medicines or the skin cleaner Chloroprep.
- After we have answered all of your questions, you will lay face up on a comfortable treatment table with your shoulder and neck exposed. We will scan with ultrasound to identify the anatomic landmarks. Throughout the procedure, we will let you know what we are doing.
- Once the landmarks are identified, a small amount of local anesthetic will be placed just under the skin to make the procedure more comfortable.
- Using real-time ultrasound guidance, a very thin needle will be guided alongside the stellate ganglion (the cervical sympathetic chain), and a long-acting anesthetic called ropivacaine will be slowly injected over 2-3 minutes. We may perform procedure this at one or two cervical levels. It is safe to talk or swallow if you need to.
- Once the needle is out, a bandage will be placed at the injection site. You will continue to lay flat for 5 minutes, then you will sit up and have the quality of your SGB assessed. When the sympathetic nerves are blocked, it results in a temporary condition referred to as a "Horner's syndrome". Your eyelid will be droopy, your pupil will get smaller than the other pupil, and the white part of your eye may get red. This is a normal part of the block and will wear off in 3 to 8 hours.
- In about 15% of cases, patients also experience a "hoarse voice" or feel as if something is in the back of their throat. This is not part of the SGB but occurs if injected anesthetic spreads to a nerve that goes to the voice box. If this happens it is temporary and will

wear off with the Horner's syndrome. When you start to drink fluids again, take a few careful sips and make sure you are swallowing normally.

- We will watch you for another 25 minutes to make sure you are doing ok before you go home. Light exercise such as walking is fine.



An example of a Horner's Syndrome on the right side.

What to do after your procedure

- Generally, patients report only mild soreness which does not require any treatment. Although complications are very rare, pain that is getting worse in your neck or shortness of breath could be signs of a serious complication: you should contact 911 or go to a local emergency room and tell them you had a neck procedure done that day. About 1 in 50 people report a mild and self-limited headache. If your headache is bothering you, it is safe to take some acetaminophen.
- Most people feel the results of the injection within an hour, but some may take days.
- Please be sure to send us the follow up PCL-5 and GAD-7 questionnaires at one week, one month and three months after the procedure. Also, ask people close to you if they notice any difference in how you have been since your SGB.
- Your experience and the PCL-5 and GAD-7 scores help us determine whether this was a good treatment for you and will be important if your symptoms return in the future.
- Although the research is clear that most patients respond to a right-sided SGB, we know from our published study that about 1 in 20 patients will only respond to a left-sided SGB. Also, we see that even if people get some response from a right-sided SGB, about 10 -20% of patients may have a greater response to a left-sided SGB.
- Many patients with PTSD get sustained relief of their symptoms and do not need further treatment, however, symptoms may be re-triggered and re-occur. If this happens and the block helped you previously, the SGB may be safely repeated. Don't let your symptoms continue to deteriorate before seeking additional treatment.
- After the SGB, avoid alcohol, (especially before bedtime) as it will interfere with establishing deep and restorative sleep patterns.
- SGB is not intended to be a stand-alone treatment for significant PTSD or other anxiety conditions and works best when part of a treatment plan with a mental health provider.
- If you are doing well after the SGB, please do not engage in any form of exposure therapy with your mental health provider, as we have seen that this re-trigger symptoms.