

**Course Name :An Overview on Maternal Health Antenatal, Intranatal and Postnatal Care**

**Professor Name: Dr. Barnali Ghosh**

**Department Name: Multidisciplinary**

**Institute Name: IIT Kharagpur**

**Week:11**

**Lecture:02**

### **Obstetric anal sphincter injuries OASIS**

Good morning everyone. Hope you are all doing good. I welcome you all to the NPTEL online certified course on the topic An Overview on Maternal Health, the Antenatal, Intranatal and Postnatal Care. I am Dr. Barnali Ghosh, an obstetrician and gynecologist working as assistant professor at B.C.Roy Multispeciality Hospital and Medical Research Center, IIT Kharagpur. Today we are going to discuss regarding Obstetric Anal Sphincter Injuries in short OASIS right.

So, the concepts covered in today's class are classification of the different types of perineal tears right. One from the first degree it can be classified in up to fourth degree and third and fourth degree perineal tear are actually the obstetrical anal sphincter injuries taken together right. Whether you know what are the risk factors for anal sphincter injury in case of delivery and what are the precaution or the preventive measures to be taken to prevent OASIS. If OASIS occurs what is the method of repair of OASIS and of course, the post-operative care after the repair of OASIS.

So, all these will be discussed today. Keywords are as given. The class has been based on the Green Top Guideline number 29 right. So, this is the guideline the GTG guideline by the RCOG which discusses regarding the management of third and fourth degree perineal tears. They are together called as Obstetric Anal Sphincter Injuries.

Now coming to the classification right. So, the classification if you see the classification of perineal tears if say this is the vagina, this is the perineal body, this is the anal opening right. Now here the anal sphincters are around the anal opening right. So, the anal sphincters will be surrounding the anal opening. Inside this is the internal anal sphincter, outside is the external anal sphincter.

This is the vaginal mucosa, this is the vagina, this is the vaginal mucosa, the lining of the vagina, the vaginal mucosa, this is the perineal body or you can say the perineal muscles they are all you know the different perineal muscles they are you know going and being you know in

a they are arranged in a fan shaped manner and they are converging in the midline to get attached to the perineal body right. So, the perineal muscles. Now depending upon the tear, so if you know only skin and you know the mucosa tear is present, only the vaginal mucosa and this is the skin right. So, this is first degree. First degree is only the vaginal mucosa and the skin.

If it involves the perineal muscles or say this type of injury, this is also your perineal body here is injured right. So, these two both these two these two types they are second degree. So, what is second degree? In second degree the vaginal mucosa is torn, the skin is torn and also the underlying perineal muscles the levator ani muscles and the perineal body gets torn. If say the tear extends and it you know there is tear in the vaginal mucosa, there is tear in the skin the perineal skin and the perineal muscles that is the levator ani muscles also the external anal sphincter, this is third degree. If say the tear extends up to the internal anal sphincter.

So, external anal sphincter torn, internal anal sphincter torn, perineal body or the perineal muscles or the levator ani muscles are torn, skin and vaginal mucosa is torn, then also it is third degree perineal tear right. But if the tear extends, if the tear extends and there is tear of the vaginal mucosa, there is tear of the perineal skin, there is tear of the perineal body or the perineal muscles, the external as well as the internal anal sphincter is torn as well as the rectal mucosa. So, around this is the anal opening. So, around the anal opening is the rectal mucosa. So, if the rectal the the the tear extends up to the rectal mucosa, this is called as fourth degree perineal tear.

I hope it is clear. So, you have to detect the degree of perineal tear after the delivery. So, actually we are discussing this you know the sphincter injury, the perineal injury, the lacerations which occur after the third stage, after the delivery of the placenta and the membranes, we now inspect for any perineal tear and if there is any perineal tear, we need to ascertain the degree of perineal tear. Now say it is third degree, third degree again can be divided into 3 parts 3 A, 3 B and 3 C. In 3 A less than 50 percent of external anal sphincter is torn.

So, it is partial, partial anal sphincter tear has occurred and it is less than 50 percent. Some or majority portion of the external anal sphincter is still intact right. In 3 B more than 50 percent of in external anal sphincter is torn and in 3 C external anal sphincter is torn together with that internal anal sphincter is also torn right. So, these are the degrees of perineal tear and here I will mention that second degree of perineal tear. Now this episiotomy, episiotomy which is iatrogenic which is made by the obstetrician or the person who is supervising the delivery that episiotomy wound will involve tear of the vaginal mucosa, of the perineal skin, of the subcutaneous tissue and the perineal muscles.

It will not involve the external anal sphincter or the internal anal sphincter or the rectal mucosa right. So, episiotomy is a iatrogenically made second degree perineal tear. So, these are what I

have already discussed first degree injury to only the skin and the perineal skin and or the vaginal mucosa. Second degree is both the perineal skin and vaginal mucosa is torn together with that it you know there is injury also to the perineal muscles, but it does not involve the anal sphincters. Here episiotomy comes under the second degree.

Third degree meaning that it involves the anal sphincter complex. Next meaning both external as well as internal. 3a less than 50 percent of external anal sphincter tear, 3b is more than 50 percent of external anal sphincter thickness tear and 3c is both your external as well as internal anal sphincter gets torn. Last is the fourth degree which is you know both the external and the internal anal sphincter is torn as well as the anorectal mucosa is also torn. And this third and fourth degree these two together are called as obstetric anal sphincter injuries OASIS right.

So, today in this class we will discuss you know why OASIS in which patients there is more risk for OASIS and how to prevent this OASIS because the anal sphincter injury can lead to fecal incontinence in the future in the patient right in the mother and that will be detrimental for the social living right. In you know there will be involuntary passage of stool, there will be involuntary passage of you know flatus. So, that will hamper the social living and the quality of life of the patient. So, we try to prevent these third and fourth degree perineal tear. So, OASIS are encompass both third and fourth degree perineal tear and in case there is any doubt about the degree of perineal tear when you are inspecting the vagina after the delivery you see a tear in the vagina or in the perineum and then you have you are in doubt whether it is third degree right.

Third degree meaning only the anal sphincter injury is there or say 3a, 3b, 3c. Now, how much part of the external anal sphincter is torn. So, if you are in doubt in that case it is advisable to classify to a higher degree if there is a confusion between 3a or 3b then you designate that it is a 3b tear and you know proceed accordingly. So, that was regarding OASIS. Another terminology is the rectal button hole tear.

What does that mean? This tear involves only the rectal mucosa, only the rectal mucosa, but the anal sphincter is still your patent right. So, the anal sphincter is not torn right it is intact. So, this is the anal opening say and here this is the internal anal sphincter and outside it is the external anal sphincter right and then here is the vaginal opening, here is the vaginal opening and here this is the perineal body right and here is the perineal muscles. So, when you are inspecting. So, see if you have given an episiotomy here.

So, here episiotomy meaning it will be medio lateral the most common episiotomy given is the medio lateral episiotomy and here you have already know repair of episiotomy wound has been done. Now you need to check by a per rectal examination this is a mandatory nobody should forget this you know after if in every patient after an episiotomy repair we go for a per rectal examination to you know detect or to note whether there has been any isolated rectal mucosa

tear that is called as rectal buttonhole tear and you know if not recognized say you miss it you do not do a PR examination then this type of tear can lead to recto vaginal fistula. If this fistula occurs in the future in the long run that will again hamper the quality of life of the patient and then the repair is much more difficult if it is detected at a later stage the repair is much more difficult than if it is detected immediately after delivery right. So, coming to the risk factors for OASIS what are the risk factors? You know there are different risk factors which you need to keep in mind. Asian ethnicity this is you know it has been studied among different populations and that has been deduced right.

So, nulliparity why because they have a rigid perineum. Birth weight macrosomia greater than 4 kg if the birth weight of the fetus is more than 4 kg then there is a chance of OASIS. In case of shoulder dystocia after the delivery of the head there is difficulty in delivery of the shoulders that is called as shoulder dystocia or impaction of the posterior shoulder in the sacral hollow. In that case you need to manipulate you need to do certain maneuvers during the delivery of the fetus that can lead to extra stretching of the vaginal opening and leading to third and fourth degree perineal tear. In persistent occiputoposterior position here you go for face to pubis delivery.

So, that also can lead to your OASIS. Prolonged second stage instrumental delivery. So, all these these are the risk factors and here you need to go for liberal medial lateral episiotomy. That means, you need to give a very good large episiotomy to increase the space of the perineal opening right. So, that were the risk factors.

Now coming to the prevention number one I have already told a liberal medial lateral episiotomy should be considered in instrumental deliveries in vacuum delivery in your forceps you know in the last class we have already discussed the forceps and the vacuum delivery or the instrumental delivery and in if you are planning for instrumental delivery you should always give a medial lateral episiotomy. Where episiotomy is indicated? Episiotomy is not routinely given, but where it is indicated a medial lateral episiotomy is given. So, this if this is the vaginal opening. So, this is the vaginal opening right this is the labia minora and outside is the labia majora and this is the anal opening. So, you have already learned the different types of episiotomy and I have told that the medial lateral episiotomy is the most commonly given medial episiotomy or in our labour room and it has no advantage because it does not involve the anal sphincter injury or anal mucosa injury.

And how to give this episiotomy this is the midline and this is 60 degree at the time of crowning at the time of crowning during the when the fetal head is seen outside the perineum without separation of the labia at the time of crowning in the second stage of labour you give the episiotomy at a angle of 60 degree from the midline right. So, 60 degree away from the midline and this after delivery after delivery this episiotomy tear will know it will converge it will

squeeze on its own that was distended by the fetal head after the delivery of the fetus the perineum will squeeze will decrease in size and then this episiotomy wound will come to 45 degrees from the midline right. So, this degree or you know the direction of the episiotomy is important that will provide the maximum space for delivery of the fetal head. Then perineal protection always when the fetal head is getting you know is being delivered by extension it has to be in a controlled manner and you know you have to give perineal protection both below and also above just below the occiput to maintain the fetal head flexion right. So, perineal protection at the time of crowning is important and warm compression over the perineum in the second stage of labour reduces the risk of OASIS.

So, these are the different types or the different methods that we implement for prevention of OASIS. Coming to the perineal protection which I was telling that you know you need to guard the perineum that that has two you know two methods you can say. Number one method which is most frequently done is the manual perineal protection or the hands on technique. How it is done? The left hand you know so, the fetal head is coming out. So, this is the vaginal opening and here is the labia minora, here is the labia majora and you can see the fetal head coming out.

So, the fetal head is coming out. Now here over the fetal head just below the occiput the left hand will be present and here will be the left hand of the obstetrician and here will be the right hand of the obstetrician right. So, below with you know you can use also a pad and right hand will be protecting the perineum below and above the left hand will be just below the occiput of the fetal head and then the mother should be asked not to push during the period of crowning right. You should ask the mother that that the fetal head is just about to get delivered and stop pushing right. No extra pushing is required it will get delivered slowly in a controlled manner and you know by the process of extension, but before the delivery of the head right this the pressure by the left hand just below the occiput that will help to maintain the flexion of the fetal head. So, that the smallest transverse diameter of the fetal head gets out from through the perineum right that will prevent unnecessary perineal tear ok.

So, that is the hands on technique you know just looking and keeping your hands close and just observing the fetal head to get delivered by itself it is not recommended nowadays. Now, you need to deliver the fetal head in a controlled manner by this manual perineal protection or hands on technique where both the hands the right hand protecting the perineum below and the left hand just you know maintaining a constant pressure just below the occiput on the fetal head thereby helping in you know delivery of the head by extension in a controlled manner that will prevent unnecessary perineal tears. And I have told that yes, episiotomy should be in the mind you know for high risk cases for high risk cases episiotomy should be given where it is indicated in case of instrumental delivery in case of macrosomia in case there is a rigid perineum or you are suspecting you know shoulder dystocia there you should give episiotomy and the angle should be 60 degree from the midline at the time of crowning and this 60 degree comes to 45

degree after the delivery of the baby. So, this is perineal protection. I have told there is two methods number one is the hands on technique and number two is the modified RITGEN maneuver.

What is done here? Here s upward pressure is applied to the fetal chin. So, here is the fetal chin and anal opening is below low down. So, with this the examiner holds the chin and the chin is given an upward pressure. Here you give a upward pressure on the fetal chin by the posterior hand right. So, you try to you know take out the you know you give a pressure upward on the fetal chin.

So, as to maintain the delivery of the fetal head by the process of extension with a sterile towel because it is slippery it is you know covered with amniotic fluid. So, a sterile towel will help in gripping the fetal chin and the suboccipital region of the fetal head is held against the symphysis pubis. So, with the other hand you press the suboccipital region of the fetal head against the symphysis pubis. So, this is modified regions maneuver you know just you hold the fetal chin and try to take out you know by an upward pressure and above you hold the fetal head and try to push the occiput or the suboccipital subocciput region is pressed or held against the symphysis pubis and this maneuver will help to deliver the fetal head by the process of extension in a controlled manner. So, modified RITGEN is actually a more you know more I will say more controlled right, but here you need to be very acquainted with the method.

So, more or less common in common practice we do this manual perineal protection or hands on technique and it has been seen that both the techniques are more or less equal in efficiency right. So, that was regarding the perineal protection, warm compression yes it is recommended in the second stage of labor and this is you know just you know mop or you know gauge pieces large gauge pieces are soaked in warm water and they are held continuously during or in between contractions over the perineum. And sometimes it has also been seen that perineal massage right during the antenatal. So, antenatal meaning starting from 35 weeks onwards. So, 35 weeks onwards if the female is educated regarding this perineal massage and also it is continued in the second stage of labor right.

So, that will also help in you know expanding the perineal tissue more and thereby decrease in the chance of extensive perineal lacerations. So, that was regarding perineal massage. How to go for that perineal massage? You introduce two fingers inside the vagina and you press the posterior vaginal wall right. You press the posterior vaginal wall low down and also you open the two fingers inside the vagina and you know go for certain lateral stretching of the vagina. So, this is the perineal massage and this can be done even in the antenatal period.

So, here the partner has to be educated regarding this perineal massage and it should be very gentle right and it has been seen that perineal massage helps to prevent you know these type of

perineal tears during the delivery because the perineum can expand more right. So, that were the preventive measures. Now, identification. So, all women are at risk of perineal tears and you need to identify after the delivery is you know completed you will go for examination of the perineum after the delivery of the placenta and also we go for a digital rectal examination to assess the you know severity whether the rectal and all the anal sphincters are torn or the rectal mucosa is torn right. And then you have to explain to the patient that you know what type of tear you have and you need to go for analgesia you know appropriate analgesia.

So, as to know that will help to you know relax the perineal muscles and you can have a greater view of the perineal tears that will help in suturing right and good lightening of course, it is needed mostly you know go for OASIS repair in OT not in labour room because it will require analgesia, it will require certain amount of sedation or you know TIVA, anaesthesia right and also it requires good lightening and position of the woman mostly in dorsal lithotomy position I mean lithotomy position with the legs bound to the stirrups right and then we inspect the perineum and we assess the degree of perineal tear and we go for repair. So, if there is a third or fourth degree perineal tear now the repair should be done in the operating theatre under regional or general anaesthesia in good lightening that we have noted. Now, say if there is excessive vaginal bleeding from the uterine cavity due to uterine atony or say natural uterine cavity it is bleeding then we can put certain gauge or vaginal pack inside for you know temporarily for to make the field to make the perineal field you know blood you know less so that we can go for the repair. And figure of 8 figure of 8 sutures are not recommended why because that will cause ischemia and that can hamper the functioning of the sphincter in the long run right.

So, that will that we do not want. So, figure of 8 sutures we do not give and rectal examination should be performed after the repair to know note whether the rectal mucosa in is intact and whether any suture you know inadvertently has passed through the rectal mucosa. Any suture meaning any foreign body if it pierces the rectal mucosa there will be rectal you know inflammation and stricture thereby causing you know rectal opening narrowing of the rectal opening. So, that we do not want. So, if any suture has passed inadvertently through the rectal mucosa it should be cut then and there in the same sitting. So, you need to go for a rectal examination after the repair is complete right and repair what the torn anorectal mucosa should be repaired with sutures either continuous or interrupted.

But what we do in rectal mucosa tear we go for interrupted interrupted suture and what is the suture material that is used for rectal mucosa it is 3 0 vicryl rectal sphincter anal sphincter right. So, internal as well as external anal sphincter complex for that we use 2 0 vicryl, vicryl meaning polygalactine right or 3 0 pds right this is for the anal sphincter ok. So, just going through this. So, where the torn IAS internal anal sphincter if torn it is identified and it is advisable to repair this separately internal anal sphincter should be repaired separately with interrupted suture and

you know without any attempt for overlapping of the IAS. So, if the internal anal sphincter these are the 2 ends of the internal anal sphincter for repair we go for end to end suture right.

So, this is end to end there is no overlapping there should not be overlapping of the internal anal sphincter. So, this is not recommended for internal anal sphincter right, but in case of full thickness external anal sphincter. So, if there is you know tear of the external. So, this we have talked about the internal now say the external anal sphincter there is full thickness tear this is the external anal sphincter for this you can either go for end to end anastomosis or you can go for this overlapping technique right. So, both overlapping either overlapping or end to end approximation method has been shown to have equivalent outcomes, but say if there is partial 3 a 3 b meaning less than 50 percent or more than 50 percent.

So, partial thickness tear. So, this is only partial thickness this is whole is the external anal sphincter and this part is continuous this is not torn only this part has been torn for this case for this type of tear for 3 a 3 b what to do for 3 a 3 b tear you always go for. So, these are the sutures with black I am drawing. So, for this type of tear you always go for end to end anastomosis right. So, when the person should always be very very you know expert in this anal sphincter injury repair and so, that there is no future anal incontinence in the patient right and you need to maintain these techniques. So, this is the pictorial representation see this is the vagina this is the anal opening this is the anal opening.

So, this tear there has been a tear and this is extending from the vagina to the anal opening right. So, this is fourth degree also the anal mucosa has been torn and gradually first the anal mucosa or sorry rectal mucosa or the anal mucosa is closed with running suture and these suture knots should not be in the anal canal they will be buried they will be buried towards the vaginal opening these knot should not be present in the anal canal because that will cause irritation that will lead to inflammation and structure of the anal canal that we do not want right and mostly this is done with 3 0 vicryl. After the anal mucosa is sutured without tension end to end then we can go for another layer that is the endopelvic fascia suturing with interrupted suture that will give strength to this anal mucosa then the anal sphincters then the anal sphincters are gradually repaired see this is the external outside this is the anal opening right you need to identify these sphincters in the human body. So, as to note the degree of perineal tear.

So, outside is this is the vagina right. So, this is the external anal sphincter see this is red in color and the internal anal sphincter is slightly pale than the external. So, this is the internal anal sphincter right I suppose you can delineate and see after repair. So, here this is the mucosal repair the mucosa this is the anal mucosa right. So, this has been repaired by end to end then this pale color this is the internal anal sphincter this has been also repaired and this is also end to end repair and see here this is the external anal sphincter these two and this was a full thickness external anal sphincter tear and here this technique is this is the external anal sphincter which

has here the repair is your overlapping technique not end to end. So, it is the repair has been done by overlapping technique and these sphincters can be repaired by your 2 0 vicryl or 3 0 pds right.

So, that was regarding the tear then you will gradually repair the vaginal the then the rest will be same as that of episiotomy repair. After the external anal sphincter there will be the perineal muscles right. So, the muscles will be repaired and then you will repair the vaginal mucosa the vaginal skin right same as that of episiotomy and in that case you can use number 1 chromic cat-gut ok. So, that was regarding the repair and suture preference I have already told 3 0 polygalactine for the anorectal mucosa and for the sphincters it is 3 0 pds or 2 0 polygalactine. Polygalactine is nothing, but your vicryl pds is not used for rectal mucosa because it also causes irritation and discomfort that can lead to anorectal structure.

And post operative care what number 1 very very important is the antibiotics broad spectrum antibiotics to prevent any type of infection or sepsis following the repair right and also post operative laxatives to reduce any straining right. So, that will you know hamper the wound healing. So, laxatives are given and mostly your you know duphalac that is lactulose. Lactulose syrup is given bulking agents like you know the isabgol should not be given routinely with laxatives and they are advised for physiotherapy following the repair to increase the muscle strength the perineal muscle strength and if the patient had an obstetric anal sphincter injury there was a repair done then she should be reviewed at 6 to 12 weeks postpartum this is very very important right at 6 to 12 weeks postpartum she should be again reviewed regarding the wound healing regarding any fecal or anal incontinence regarding any presence of any fistula right. And if the woman is experiencing any incontinence or pain then specialist gynecologist or colorectal surgeon should be you know called upon an opinion should be taken for further evaluation.

Here I will add that 60 to 80 percent women are asymptomatic they get they become asymptomatic following OASIS obstetric anal sphincter injury repair by 12 months. So, by 12 months 60 to 80 percent they become asymptomatic. So, they are cured if the repair is properly done then they will be cured and they will return to normal functioning of day to day life activities right. So, that was regarding your anal sphincter injury another thing is for whom to go for LSCS in future pregnancy say there was a OASIS in the previous pregnancy and now in future pregnancy whether LSCS is recommended you know who you know for only for those where it is symptomatic where the patient is symptomatic say there is incontinence or pain in a case of OASIS. So, symptomatic OASIS or if the endo anal USG or the manometry are abnormal so that means, that there is certain incontinence or certain degree of you know defective repair of this sphincter then we will not go for vaginal delivery we will only opine for caesarean section.

But if she is asymptomatic she is normal she is having healthy lifestyle there is no difficulty then again we can go for vaginal delivery, but this time it should be you know very cautiously done and you know if required we need to go for a episiotomy, medial lateral, liberal episiotomy and also delivery of the head should be done in a very controlled manner so as to prevent any unnecessary perineal tear right. So, that was regarding your obstetric anal sphincter injuries and their repair and their prevention as well as the post operative care. References has been taken from D.C Dutta book of obstetrics, the Williams 26th edition on obstetrics and James book on high risk pregnancy. So, that is all for today's class. Thank you for your patient hearing.