

CASES FOR TRAINING OF THE INTERNATIONAL SPINAL CORD INJURY LOWER URINARY TRACT FUNCTION BASIC DATA SET

CASE 1

35 years old man, who previously has been completely healthy, was shot twice in the neck nearly four months before. This resulted in cervical vertebral fractures 1, 2 and 7 with cervical spinal cord lesion and tetraplegia (C4 AIS B) with respiratory insufficiency leading to tracheostomy and intermittent artificial ventilation.

He was seen in the clinic 20th of March 2017 and reports that initially he had an indwelling urethral catheter but has changed to intermittent sterile catheterisation by the personnel. He has some indirect feeling of voiding, as he feels warm in the neck region and uses this for timing of the catheterisations. The catheterisations are performed with hydrophilic catheters Ch 12. On average he has bladder emptying 6 times per day, and this has been the same for the last month. In particular when he is mobilised in his power wheelchair he is urinary incontinent daily, which has been the reality nearly from the beginning of his spinal cord injury, and for this reason he uses diapers. He has tried anticholinergic drugs, but he had adverse effects and they did not alleviate the incontinence, thus have not been used for the last week. He has had three urinary tract infections since injury, which had to be treated with antibiotics, did just stop treatment a couple of days ago. Otherwise the only medication he is taking is gabapentine and noritrene due to neuropathic pain. A recent urodynamic investigation showed detrusor sphincter dyssynergia with identical cystometric bladder capacity and post void residual volume of 260 mL, and a leak point pressure and maximum detrusor pressure of 20 cm H₂O. Due to the incontinence he is thinking about having a supra-pubic catheter inserted in the future.

INTERNATIONAL SPINAL CORD INJURY LOWER URINARY TRACT FUNCTION BASIC DATA SET (Version 2.0) – FORM

CASE 1

Date of data collection: 20170320

Urinary tract impairment unrelated to spinal cord lesion:

No Yes, specify _____ Unknown

Awareness of the need to empty the bladder:

No Yes Not applicable Not known

Bladder emptying:

Main Supplementary

Normal voiding (Voluntary initiation of micturition without reflex stimulation or compression of the bladder. This does not presume entirely normal function)

Bladder reflex triggering

Voluntary (tapping, scratching, anal stretch, etc.)

Involuntary

Bladder expression

Straining (abdominal straining, Valsalva's manoeuvre)

External compression (Credé manoeuvre)

Intermittent catheterisation

Self-catheterisation

Catheterisation by attendant

Indwelling catheter

Transurethral

Suprapubic

Non-continent urinary diversion/ostomy

Other method, specify _____

Unknown

Average number of voluntary bladder emptyings per 24 hours during the last week 6

Not applicable Unknown

Any involuntary urine leakage (urinary incontinence) within the last four weeks:

Daily Once or more per week (but not daily) Less than once per week

Never Not applicable Unknown

Collecting appliances for urinary incontinence:

No Yes, condom catheter/sheath

Yes, diaper/pad

Yes, ostomy bag

Yes, other, specify _____

Unknown

Any drugs with possible influence on the urinary tract within the last four weeks:

- No Yes, bladder relaxant drugs (antimuscarinics, anticholinergics, tricyclic antidepressants, etc. (not intradetrusor injections))
- Yes, sphincter/bladder neck relaxant drugs (alpha adrenergic blockers, etc. (not intrasphincter injections))
- Yes, antibiotics/antiseptics: For treatment of urinary tract infection
 For prophylactic reasons
- Yes, other, specify _____
- Unknown

Surgical procedures on the urinary tract:

- No Yes, supra-pubic catheter insertion, date last performed YYYYMMDD
- Yes, bladder stone removal, date last performed YYYYMMDD
- Yes, upper urinary tract stone removal, date last performed YYYYMMDD
- Yes, bladder augmentation, date last performed YYYYMMDD
- Yes, sphincterotomy/urethral stent, date last performed YYYYMMDD
- Yes, botulinum toxin injection into the detrusor, date last performed YYYYMMDD
- Yes, artificial sphincter, date last performed YYYYMMDD
- Yes, ileovesicostomy, date last performed YYYYMMDD
- Yes, ileoureterostomy (ileal conduit), date last performed YYYYMMDD
- Yes, continent catheterizable valves, date last performed YYYYMMDD
- Yes, other, specify _____ , date performed YYYYMMDD
- Unknown

Any change in lower urinary tract symptoms within the last year:

- No Yes Not applicable Unknown

**CASES FOR TRAINING OF
THE INTERNATIONAL SPINAL CORD INJURY LOWER URINARY TRACT
FUNCTION BASIC DATA SET**

CASE 2

A 29 year old male who was otherwise healthy without any significant past medical issues, was involved in a car accident on 1/25/2017. The patient sustained C3, C4, and C5 fractures and required intubation and tube feedings. He subsequently underwent open reduction and internal fixation of the C3, C4, and C5 fractures with fusion of C3-C5. The patient (C5 AIS C) initially had an indwelling foley catheter, which was removed on 2/8/2017. The patient then began managing his bladder with reflex voiding and clean intermittent catheterization while in the hospital. However, he decided he would like to attempt to do reflex voiding only. The patient was initially started on tamsulosin 0.4 mg daily, which is now two months ago. The patient was then reflex voiding and required catheterization once daily for residual urine volumes ranging from 200-300cc. The patient was using a sterile straight catheter for catheterization and an all silicone condom catheter. He had no feeling of bladder filling, and was complaining of multiple urinary tract infections, for which he is in treatment at the present time. A urodynamic testing showed him to have a baseline pressure of 20 cm/H₂O and void 250cc with a residual of 205cc. The patient voided with pressures ranging from 67cm/H₂O-76 cm/H₂O. Based on the results of his urodynamic studies, the patient is considering botulinum toxin chemodenervation to the internal and external sphincter to improve his voiding efficiency. He was seen for routine evaluation 10/11/2017.

INTERNATIONAL SPINAL CORD INJURY LOWER URINARY TRACT FUNCTION BASIC DATA SET – FORM

CASE 2

Date of data collection: 20171011

Urinary tract impairment unrelated to spinal cord lesion:

No Yes, specify _____ Unknown

Awareness of the need to empty the bladder:

No Yes Not applicable Not known

Bladder emptying:

Main Supplementary

Normal voiding (Voluntary initiation of micturition without reflex stimulation or compression of the bladder. This does not presume entirely normal function)

Bladder reflex triggering

Voluntary (tapping, scratching, anal stretch, etc.)

Involuntary

Bladder expression

Straining (abdominal straining, Valsalva's manoeuvre)

External compression (Credé manoeuvre)

Intermittent catheterisation

Self-catheterisation

Catheterisation by attendant

Indwelling catheter

Transurethral

Suprapubic

Non-continent urinary diversion/ostomy

Other method, specify _____

Unknown

Average number of voluntary bladder emptyings per 24 hours during the last week 1

Not applicable Unknown

Any involuntary urine leakage (urinary incontinence) within the last four weeks:

Daily Once or more per week (but not daily) Less than once per week

Never Not applicable Unknown

Collecting appliances for urinary incontinence:

No Yes, condom catheter/sheath

Yes, diaper/pad

Yes, ostomy bag

Yes, other, specify _____

Unknown

**CASES FOR TRAINING OF
THE INTERNATIONAL SPINAL CORD INJURY LOWER URINARY TRACT
FUNCTION BASIC DATA SET**

CASE 3

A 29 year old female who was otherwise healthy without any significant past medical issues, who was involved in a car accident on 01/25/2014 came for follow-up 05/11/2017. As a result of the car crash, she had a C6 pedicle fracture with C6-C7 bilateral facet dislocations. She underwent C5-C7 posterior segmental instrumentation, C5-C7 posterior arthrodesis with autograft, and left posterior iliac crest bone graft harvest. The patient (C6 AIS A) initially had a foley catheter, which was removed on 02/12/14. Upon removal of the foley catheter, the patient was placed on the oxybutynin patch, two patches every three-four days, and began performing self-catheterization every six hours. She has no awareness of bladder filling. Due to multiple urinary tract infections, leakage between catheterizations, as well as significant detrusor hyperreflexia with detrusor external sphincter dyssnergia on urodynamic studies, the patient underwent botulinum toxin chemodenervation to the detrusor on June 6th 2016. The patient had no improvement of symptoms after her botulinum toxin chemodenervation and began Oxybutinin ER 10mg twice daily. Due to difficulty with self-catheterization and leakage between catheterizations, the patient had changed her form of bladder management to a 14 Fr silicone indwelling foley catheter in September 2016. She has not had any urologic issues with her catheter and gets is changed every 4 weeks. Her most recent urodynamic testing showed the patient to have a small bladder capacity of 114 ml. with a decrease in bladder compliance. She had an elevated detrusor leak point pressure of 85 cm/H₂O. Ultimately the patient would like to resume self-catheterization via a continent catheterizable valve and discontinue the foley catheter. The patient is currently contemplating reconstructive surgery including a bladder augmentation with an Mitrofanoff appendicovesicostomy.

INTERNATIONAL SPINAL CORD INJURY LOWER URINARY TRACT FUNCTION BASIC DATA SET – FORM

CASE 3

Date of data collection: 20170511

Urinary tract impairment unrelated to spinal cord lesion:

No Yes, specify _____ Unknown

Awareness of the need to empty the bladder:

No Yes Not applicable Not known

Bladder emptying:

Main Supplementary

Normal voiding (Voluntary initiation of micturition without reflex stimulation or compression of the bladder. This does not presume entirely normal function)

Bladder reflex triggering

Voluntary (tapping, scratching, anal stretch, etc.)

Involuntary

Bladder expression

Straining (abdominal straining, Valsalva's manoeuvre)

External compression (Credé manoeuvre)

Intermittent catheterisation

Self-catheterisation

Catheterisation by attendant

Indwelling catheter

Transurethral

Suprapubic

Non-continent urinary diversion/ostomy

Other method, specify _____

Unknown

Average number of voluntary bladder emptyings per 24 hours during the last week _____

Not applicable Unknown

Any involuntary urine leakage (urinary incontinence) within the last four weeks:

Daily Once or more per week (but not daily) Less than once per week

Never Not applicable Unknown

Collecting appliances for urinary incontinence:

No Yes, condom catheter/sheath

Yes, diaper/pad

Yes, ostomy bag

Yes, other, specify _____

Unknown

Any drugs with possible influence on the urinary tract within the last four weeks:

- No Yes, bladder relaxant drugs (antimuscarinics, anticholinergics, tricyclic antidepressants, etc. (not intradetrusor injections))
- Yes, sphincter/bladder neck relaxant drugs (alpha adrenergic blockers, etc. (not intrasphincter injections))
- Yes, antibiotics/antiseptics: For treatment of urinary tract infection
 For prophylactic reasons
- Yes, other, specify _____
- Unknown

Surgical procedures on the urinary tract:

- No Yes, supra-pubic catheter insertion, date last performed YYYYMMDD
- Yes, bladder stone removal, date last performed YYYYMMDD
- Yes, upper urinary tract stone removal, date last performed YYYYMMDD
- Yes, bladder augmentation, date last performed YYYYMMDD
- Yes, sphincterotomy/urethral stent, date last performed YYYYMMDD
- Yes, botulinum toxin injection into the detrusor, date last performed **20160606**
- Yes, artificial sphincter, date last performed YYYYMMDD
- Yes, ileovesicostomy, date last performed YYYYMMDD
- Yes, ileoureterostomy (ileal conduit), date last performed YYYYMMDD
- Yes, continent catheterizable valves, date last performed YYYYMMDD
- Yes, other, specify _____ , date performed YYYYMMDD
- Unknown

Any change in lower urinary tract symptoms within the last year:

- No Yes Not applicable Unknown

**CASES FOR TRAINING OF
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CASE 4

75 years old man with thoracic 7 paraplegia for 14 years as the result of a motor traffic accident, who came for follow-up August 12 2017. Urological history: transurethral resection of benign prostate hyperplasia at the age of 63.

He had developed a neurogenic overactive bladder with detrusor sphincter dyssynergia. This was treated originally with bladder relaxant drugs and intermittent self catheterisation. The urological evolution was without problems until 5 years ago when bilateral hydronephrosis was diagnosed during a period of recurrent infections. Urodynamic testing showed a low compliant, high pressure bladder with bilateral vesicoureteral reflux. The creatinine was slightly increased.

A period of indwelling catheter had to be stopped because erosion of the urethral meatus and glans penis. Botulinum toxin could not be used because it was too expensive (no reimbursement in patient's country). Enterocystoplasty was refused by the patient.

Sphincterotomy was performed on November 22, 2011 and condom catheter was utilized beginning 4.5 years ago.

During a 2014 follow up visit, his PSA was found to be elevated (31 ng/mL; normal for his lab < 4.6 for his age).

Prostate biopsies showed adenocarcinoma of the prostate pT2 Gleason 3+3, n0, m0

Focused radiotherapy was given which made the PSA lower at 0.1.

During the subsequent year, he developed pressure injuries of penile skin and diabetes was diagnosed.

An ileal conduit was performed April 2, 2015.

After two years of follow up, there was no hydronephrosis. Creatinine remained normal and his PSA normalized. He had no problems at stoma site.

INTERNATIONAL SPINAL CORD INJURY LOWER URINARY TRACT FUNCTION BASIC DATA SET – FORM

CASE 4

Date of data collection: 20170812

Urinary tract impairment unrelated to spinal cord lesion:

- No Yes, specify: Transurethral resection of benign prostate hyperplasia at the age of 63. 2014 raise of PSA (31 ng/ml; normal for his lab < 4.6 for his age). Biopsies showed adenocarcinoma of the prostate pT2 Gleason 3+3, n0, m0. Focused radiotherapy was given which made the PSA lower at 0.1.
- Unknown

Awareness of the need to empty the bladder:

- No Yes Not applicable Not known

Bladder emptying:

	Main	Supplementary
Normal voiding (Voluntary initiation of micturition without reflex stimulation or compression of the bladder. This does not presume entirely normal function)	<input type="checkbox"/>	<input type="checkbox"/>
Bladder reflex triggering		
Voluntary (tapping, scratching, anal stretch, etc.)	<input type="checkbox"/>	<input type="checkbox"/>
Involuntary	<input type="checkbox"/>	<input type="checkbox"/>
Bladder expression		
Straining (abdominal straining, Valsalva's manoeuvre)	<input type="checkbox"/>	<input type="checkbox"/>
External compression (Credé manoeuvre)	<input type="checkbox"/>	<input type="checkbox"/>
Intermittent catheterisation		
Self-catheterisation	<input type="checkbox"/>	<input type="checkbox"/>
Catheterisation by attendant	<input type="checkbox"/>	<input type="checkbox"/>
Indwelling catheter		
Transurethral	<input type="checkbox"/>	<input type="checkbox"/>
Suprapubic	<input type="checkbox"/>	<input type="checkbox"/>
Non-continent urinary diversion/ostomy	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Other method, specify _____	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Unknown		

Average number of voluntary bladder emptyings per 24 hours during the last week _____

- Not applicable Unknown

Any involuntary urine leakage (urinary incontinence) within the last four weeks:

- Daily Once or more per week (but not daily) Less than once per week
- Never Not applicable Unknown

Collecting appliances for urinary incontinence:

- No Yes, condom catheter/sheath
- Yes, diaper/pad
- Yes, ostomy bag
- Yes, other, specify _____

Unknown

Any drugs with possible influence on the urinary tract within the last four weeks:

- No
- Yes, bladder relaxant drugs (antimuscarinics, anticholinergics, tricyclic antidepressants, etc. (not intradetrusor injections))
 - Yes, sphincter/bladder neck relaxant drugs (alpha adrenergic blockers, etc. (not intrasphincter injections))
 - Yes, antibiotics/antiseptics: For treatment of urinary tract infection
 For prophylactic reasons
 - Yes, other, specify_____

Unknown

Surgical procedures on the urinary tract:

- No
- Yes, supra-pubic catheter insertion, date last performed YYYYMMDD
 - Yes, bladder stone removal, date last performed YYYYMMDD
 - Yes, upper urinary tract stone removal, date last performed YYYYMMDD
 - Yes, bladder augmentation, date last performed YYYYMMDD
 - Yes, sphincterotomy/urethral stent, date last performed **20111122**
 - Yes, botulinum toxin injection into the detrusor, date last performed YYYYMMDD
 - Yes, artificial sphincter, date last performed YYYYMMDD
 - Yes, ileovesicostomy, date last performed **20150402**
 - Yes, ileoureterostomy (ileal conduit), date last performed YYYYMMDD
 - Yes, continent catheterizable valves, date last performed YYYYMMDD
 - Yes, other, specify_____ , date performed YYYYMMDD

Unknown

Any change in lower urinary tract symptoms within the last year:

- No Yes Not applicable Unknown

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FUNCTION BASIC DATA SET**

CASE 5

An otherwise normal male infant without any identified health issues until he was diagnosed with transverse myelitis when he was 10 months of age on January 12, 2017. He was initially managed in a children's hospital for 2 weeks and was then hospitalized as an inpatient for 2 months on the paediatric unit of a rehabilitation hospital. During his stay on the paediatric rehabilitation unit, a renal ultrasound identified bilateral hydronephrosis and a cystogram demonstrated bilateral grade IV vesicoureteral reflux. He was discharged home on an intermittent catheterization every 4 hours, which was performed by his parents, and trimethoprim sulfamethoxazole prophylactically because of the vesicoureteral reflux. When he was seen on July 14, 2017, a repeat renal ultrasound identified bilateral hydronephrosis and urodynamics revealed a small bladder of 30 ml with decrease in bladder compliance.

INTERNATIONAL SPINAL CORD INJURY LOWER URINARY TRACT FUNCTION BASIC DATA SET – FORM

CASE 5

Date of data collection: 20170714

Urinary tract impairment unrelated to spinal cord lesion:

No Yes, specify _____ Unknown

Awareness of the need to empty the bladder:

No Yes Not applicable Not known

Bladder emptying:

Main Supplementary

Normal voiding (Voluntary initiation of micturition without reflex stimulation or compression of the bladder. This does not presume entirely normal function)

Bladder reflex triggering

Voluntary (tapping, scratching, anal stretch, etc.)

Involuntary

Bladder expression

Straining (abdominal straining, Valsalva's manoeuvre)

External compression (Credé manoeuvre)

Intermittent catheterisation

Self-catheterisation

Catheterisation by attendant

Indwelling catheter

Transurethral

Suprapubic

Non-continent urinary diversion/ostomy

Other method, specify _____

Unknown

Average number of voluntary bladder emptyings per 24 hours during the last week _____

Not applicable Unknown

Any involuntary urine leakage (urinary incontinence) within the last four weeks:

Daily Once or more per week (but not daily) Less than once per week

Never Not applicable Unknown

Collecting appliances for urinary incontinence:

No Yes, condom catheter/sheath

Yes, diaper/pad

Yes, ostomy bag

Yes, other, specify _____

Unknown

Any drugs with possible influence on the urinary tract within the last four weeks:

- No Yes, bladder relaxant drugs (antimuscarinics, anticholinergics, tricyclic antidepressants, etc. (not intradetrusor injections))
 Yes, sphincter/bladder neck relaxant drugs (alpha adrenergic blockers, etc. (not intrasphincter injections))
 Yes, antibiotics/antiseptics: For treatment of urinary tract infection
 For prophylactic reasons
 Yes, other, specify _____
 Unknown

Surgical procedures on the urinary tract:

- No Yes, supra-pubic catheter insertion, date last performed YYYYMMDD
 Yes, bladder stone removal, date last performed YYYYMMDD
 Yes, upper urinary tract stone removal, date last performed YYYYMMDD
 Yes, bladder augmentation, date last performed YYYYMMDD
 Yes, sphincterotomy/urethral stent, date last performed YYYYMMDD
 Yes, botulinum toxin injection into the detrusor, date last performed YYYYMMDD
 Yes, artificial sphincter, date last performed YYYYMMDD
 Yes, ileovesicostomy, date last performed YYYYMMDD
 Yes, ileoureterostomy (ileal conduit), date last performed YYYYMMDD
 Yes, continent catheterizable valves, date last performed YYYYMMDD
 Yes, other, specify _____ , date performed YYYYMMDD
 Unknown

Any change in lower urinary tract symptoms within the last year:

- No Yes Not applicable Unknown