Supplementary Table 3: Anatomic boundaries of the organs at risk in NPC.

Organ	Standard TPS name [20]	Cranial	Caudal	Anterior	Posterior	Lateral	Medial
TMJ	TMjoint[a]	Disappearance of articular cavity	Appearance of the head of mandible or one slice superior to the sigmoid notch of the neck of mandible	Articular condyle of the temporal bone, ant. edge of mandibular condyle	Surface of fossa glenoid	Lat. edge of mandibular condyle or surface of fossa glenoid	
Brainstem	BrainStem	Optic tract or the disappearance of posterior cerebral artery	Foramen magnum	Post. edge of prepon- tine cistern or basilar artery	Ant. edge of forth ventricle or mesencephalic aqueduct	Posterior cerebral artery, anterior inferior cerebellar artery, cerebellar peduncle	
Optic chiasm	Chiasm	One or two slices superiorly	Pituitary or suprasellar cistern	Optic canal	Infundibulum	Internal carotid arteries, middle cerebral arteries	
Tongue(oral cavity)[b]	Tongue	Post. edge of the hard palate or soft palate	Disappearance of anterior belly of digastric muscle	Post. edge of mandible or is free	Palate, oropharynx, the palatine tonsil, hyoid bone	Med. edge of the mandible or inferior alveoli socket	
Larynx(larynx and laryngopharynx)	Larynx	Cranial edge of epiglottis	Caudal edge of cricoid cartilage	Ant. edge of thyroid cartilage or cricoid cartilage	Including arytenoid cartilage, the superior and inferior horns of	Med. edge of hyoid bone, lat. edge of thyroid cartilage and cricoid	

					thyroid cartilage and post. edge of pharyngeal constrictor	cartilage, cervical vessels, nerves, and lateral thyroid	
Upper pharyngeal constrictor [22]	Pharyngeal-Const_Upper	Caudal edge of pterygoid plates	Cranial edge of hyoid bone	Nasopharynx, oropharynx, laryngopharynx, base of tongue	Longus capitis m., longus colli m., body of cervical vertebra	Carotid sheath	
Middle pharyngeal constrictor [22]	Pharyngeal-Const_Middle	Cranial edge of hyoid bone	Caudal edge of hyoid bone	Laryngopharynx	Longus capitis m., longus colli m., body of cervical vertebra	Hyoid bone	
Inferior pharyngeal constrictor [22]	Pharyngeal-Const_Lower	Caudal edge of hyoid bone	Caudal edge of cricoid cartilage	Laryngopharynx or cricoids cartilage	Longus capitis m., longus colli m., body of cervical vertebra	Thyroid cartilage or thyroid gland	
Trachea	Trachea	Caudal edge of cricoid cartilage	Two centimeters below the caudal edge of the clavicular head	Post. edge of isthmus of thyroid gland	Ant. edge of esophagus	Lateral thyroid gland	One-two millimeters expanded from the lumen of trachea
Subman-dibular gland	Submandibular[a]	Inferior edge of medial pterygoid or the level of C3	Appearance of fat space of submandibular triangle	Lat. surface of mylohyoid m. or hyoglossus m.	Parapharyngeal space, cervical vessels and post. belly of digastric m., sternocleidomastoid m.	Ramus of the mandible, subcutaneous fat or platysma	Cervical vessels, superior and middle pharyngeal constrictor m., hyoid bone, post. belly of the digastric m., mylohyoid m. or

							hyoglossus m.
Esophagus [22]	Esophagus	Caudal edge of cricoid cartilage	Two centimeters below the caudal edge of the clavicular head	Trachea	Vertebral body or longus colli m.	Fat space or thyroid gland	
Optic nerve [23]	OpticNerve[a]	Below the superior rectus	Superior the inferior rectus	Posterior edge of the center of globe	Optic canal		
Temporal lobe	TemporalLobe[a]	Cranial edge of the sylvian fissure	Base of middle cranial fossa	Temporal bone and sylvian fissure, greater wing of sphenoid	Petrous part of temporal lobe, tentorium of cerebellum, incisura preoccipitalis	Temporal bone	Cavernous sinus, sphenoid sinus, sella turcica, and sylvian fissure （including parahippocampal gyrus and hippocampus
Parotid gland [21]	Parotid[a]	External auditory canal, mastoid process	Appearance post. part submandibular space	Masseter m. post. border mandibular bone, medial pterygoid m.	Ant. belly sternocleidomastoid m., lat. side post. belly of the digastric m. (posterior medial), mastoid process	Submandibular fat, platysma	Post. belly of the digastric m., styloid process, parapharyngeal space, sternocleidomastoid
Spinal cord	SpinalCord	Disappearance of cerebellum	Two centimeters below the inferior edge of the clavicular head	Exclude the subarachnoid space			
Brachial plexus [24]	BrachialPlexus[a]	Caudal edge of C4	Caudal edge of T1 at neural	Anterior scalene muscle	Middle scalene muscle	Fat space	Spinal cord

			foramina and one to two CT slices below the clavicular head as the posterior aspect of the neurovascular bundle				
Thyroid gland	Thyroid	Caudal edge of pyriform sinus or midpoint of thyroid cartilage	Body of fifth to seventh cervical vertebra	Sternohyoid or sternocleidomastoid	Cervical vessels or longus colli m.	Cervical vessels or sternocleidomastoid	Thyroid cartilage or cricoids cartilage or esophagus or pharyngeal constrictor
Mandible	Mandible	The mandible be contoured as whole organ but not be divided into the left and the right. Contouring of the mandible should include alveolar bone and exclude the teeth.					
Inner ear	Ear_Inner[a]	Cochlea and IAC should be individually delineated and named.					
Middle ear	Ear_Middle[a]	Tympanic cavity, bony part of ET should be individually delineated and named.					
Eyes	Eyes[a]	Ensure the retina to be contoured completely.					
Lens	Lens[a]	The boundary between the lens and the vitreum is obvious					
Pituitary	Pituitary	The pituitary is located in the hypophysial fossa. Insure the organ be contoured completely but not beyond the surrounding bone. The pituitary is ovoid and can be visualized on 1-2 slices on CT scans of 3 mm thickness					

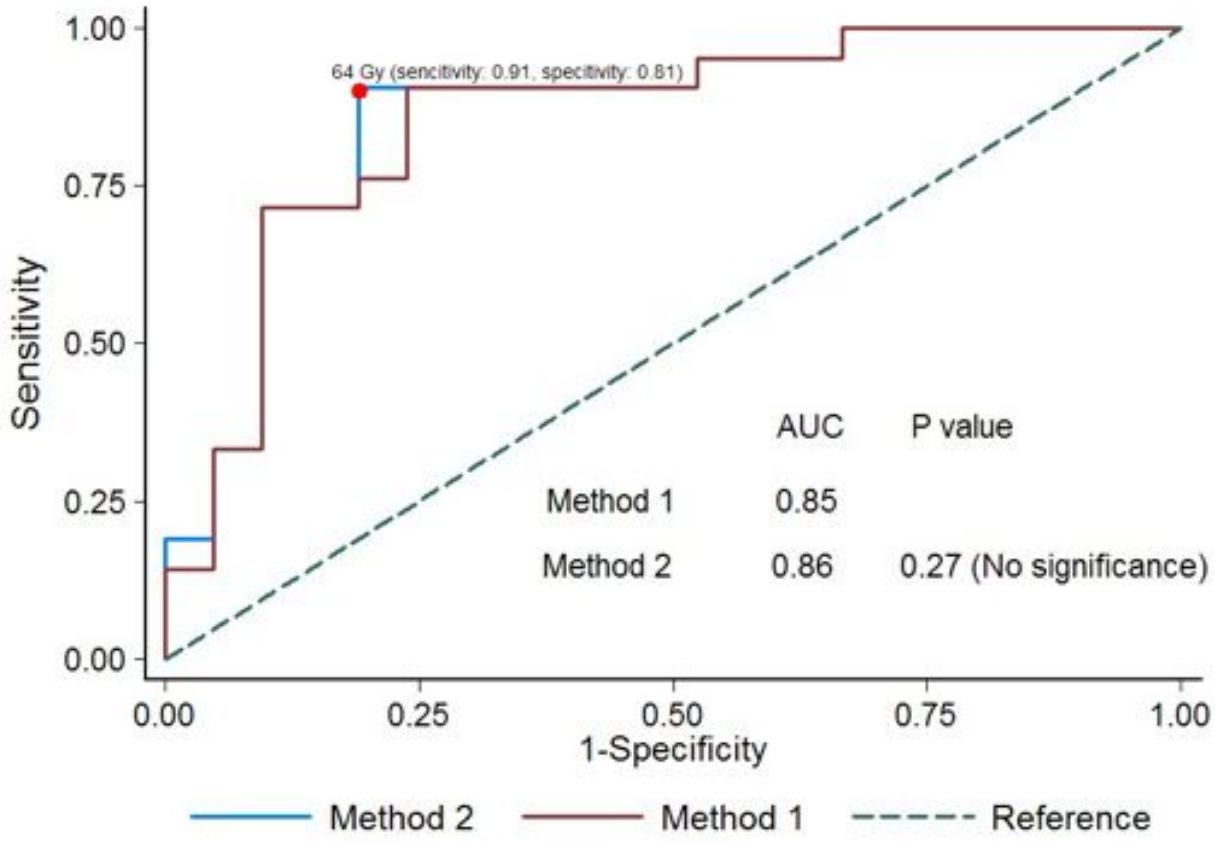
Abbreviations: TMJ, temporomandibular joint; ET, Eustachian tube; IAC, internal auditory canal; m., muscle.

[a] The organs should be divided into left and right, and the standard TPS name of laterality is indicated by appending an underscore character (_), followed by L or R, respectively. For example, the left parotid is named Parotid_L; the right parotid is named Parotid_R.

[b] include the base of the tongue, body of tongue and mouth floor.

Supplementary table 4: Abbreviations mentioned in the manuscript.

Abbreviations	Full name
OAR	organ at risk
TMJ	temporomandibular joint
NPC	nasopharyngeal carcinoma
PC	pharyngeal constrictor
ET	Eustachian tube
ROC	receiver operating characteristic
TLN	temporal lobe necrosis
IAC	auditory canal
RT	radiotherapy
GTV	gross target volume
CTV	clinical target volume
PTV	planning target volume
PRV	planning organ at risk volume
Dmean	mean dose
Dmax	maximum dose
S.E.	standard error
SNHL	sensorineural hearing loss
OME	otitis media with effusion
IMRT	intensity modulated radiotherapy
VMAT	volumetric modulated arc therapy
AUC	Area under the curve
Dx(xcc)	minimum dose received by the ‘‘hottest’’ x% (or x ml) of the organ
Vx	volume percentage of the organ receiving ≥ X Gy



Supplementary Figure 1. Receiver operating characteristic (ROC) curve analysis for the D1 of the PRV using two different temporal lobe contouring methods in 21 NPC patients with unilateral TLN.